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United States Department of the Interior
Bureau of Land Management

FINAL

Montana State Office

October 1992



Judith Valley Phillips Resource Management Plan Environmental Impact Statement

VOLUME ONE

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based on the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation; rangelands; timber; minerals; watershed; fish and wildlife; wilderness; air; and scenic, scientific, and cultural values.

BLM-MT-ES-93-001-4410



IN REPLY TO:

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Montana State Office
222 North 32nd Street
P.O. Box 36800
Billings, Montana 59107-6800



Dear Reader:

Enclosed is the proposed final Judith-Valley-Phillips Resource Management Plan and Environmental Impact Statement (RMP/EIS).

The proposed final RMP/EIS presents the Preferred Alternative for multiple-use management of public lands administered by BLM within the Judith, Valley and Phillips Resource Areas and analyzes the environmental impacts of implementing the proposed plan and four other alternatives. It incorporates comments and suggestions made on the draft RMP/EIS during the public review period which began in July, 1991 and ended in December, 1991. Volume 1 of the final RMP/EIS contains the alternatives, environmental analysis and supporting information. Volume 2 contains the public comments received along with the Bureau's responses to those comments. Changes to the draft and new information are highlighted in the final RMP/EIS.

Changes were made to the Preferred Alternative in the draft RMP/EIS including: specific tracts of land for acquisition are not listed or shown; the document clearly states that BLM would not use condemnation to implement land tenure adjustment under this land use plan; off-road vehicle travel would be allowed for game retrieval on BLM lands limited to designated roads and trails; elk habitat management is consistent with the Montana Department of Fish, Wildlife and Parks 1992 elk management plan; the South Moccasin Mountains are not included in the Judith Mountains Scenic Area ACEC; and Collar Gulch would not be designated an ACEC and would remain open to mineral entry. Other changes have been made to the Preferred Alternative and are summarized on pages ii through v, and described in detail on pages 84 through 97 of the final RMP/EIS. The proposed plan includes the Preferred Alternative to resolve the issues and Management Common To All Alternatives which is described on pages 9 through 36.

The resource management planning process includes an opportunity for administrative review via a plan protest to the BLM's Director. Any person who participated in the planning process and has an interest which is or may be adversely affected by the approval of an RMP may protest such approval. Careful adherence to the following guidelines will assist in preparing a protest that will assure the greatest consideration to your point of view.

Only those persons or organizations who participated in the planning process may protest. A protesting party may raise only those issues which were commented on during the planning process. New issues may be raised at any time but should be directed to the Lewistown District for consideration in plan implementation, as potential plan amendments, or as otherwise appropriate.

The period for filing protests begins when the Environmental Protection Agency publishes in the *Federal Register* its Notice of Receipt of the final environmental impact statement containing the proposed RMP. The protest period extends for 30 days. There is no provision for any extension of time. To be considered "timely," your protest must be postmarked no later than the last day of the protest period. Also, although not a requirement, we suggest that you send your protest by certified mail, return receipt requested.

Protests must be filed in writing to:

Director (760)
Bureau of Land Management
1849 "C" Street, NW
Washington, D.C. 20240

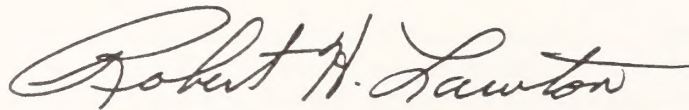
In order to be considered complete, your protest must contain, at a minimum, the following information:

1. The name, mailing address, telephone number, and interest of the person filing the protest.
2. A statement of the issue or issues being protested.
3. A statement of the part or parts of the plan being protested. To the extent possible, this should be done by reference to specific pages, paragraphs, sections, tables, maps, etc. included in the proposed RMP.
4. A copy of all documents addressing the issue or issues that you submitted during the planning process or a reference to the date the issue or issues were discussed by you for the record.
5. A concise statement explaining why the BLM State Director's decision is believed to be incorrect. This is a critical part of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents, environmental analysis documents, available planning records (i.e. meeting minutes or summaries, correspondence, etc.). A protest which merely expresses disagreement with the Montana State Director's proposed decision, without any data will not provide us with the benefit of your information and insight. In this case, the Director's review will be based on the existing analysis and supporting data.

At the end of the 30-day protest period, the BLM may issue a Record of Decision, approving implementation of any portions of the proposed plan not under protest. Approval will be withheld on any portion of the plan under protest until the protest has been resolved.

We thank the individuals and organizations who participated in our planning process, helping us to prepare a plan that will lead to more effective and efficient management of public lands and minerals. Your interest is appreciated.

Sincerely,

A handwritten signature in cursive script, reading "Robert H. Lawton". The signature is written in dark ink and is positioned above the printed name "State Director".

State Director

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JUDITH—VALLEY—PHILLIPS
RESOURCE MANAGEMENT PLAN
AND
ENVIRONMENTAL IMPACT STATEMENT

OCTOBER 1992

BLM LIBRARY
SC-653, BLDG. 50
DENVER FEDERAL CENTER
P. O. BOX 25047
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Prepared by

United States Department of the Interior
Bureau of Land Management
Montana State Office
Lewistown District Office
Judith Resource Area
Valley Resource Area
Phillips Resource Area

Prepared by:

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Oct. 1992
Date

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Area Manager, Valley Resource Area

October, 1992
Date

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Oct. 1992
Date

Recommended by:

David L. Mann
District Manager, Lewistown

Oct. 1992
Date

Approved by:

Robert H. Lawton
State Director, Montana

Oct. 1992
Date

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
LEWISTOWN DISTRICT OFFICE
LEWISTOWN, MONTANA**

PROPOSED FINAL

**JUDITH-VALLEY-PHILLIPS RESOURCE MANAGEMENT PLAN
AND ENVIRONMENTAL IMPACT STATEMENT**

ABSTRACT

This proposed final resource management plan and environmental impact statement (RMP/EIS) addresses future management options for approximately 2.8 million surface acres and 3.4 million acres of federal mineral estate in northcentral Montana. These lands are administered by the Bureau of Land Management through the Judith, Valley and Phillips Resource Areas and includes BLM land and federal minerals in Fergus, Petroleum, Judith Basin, Phillips and Valley Counties and the southern half of Chouteau County.

The plan focuses on management options to resolve these nine issues: land acquisition and disposal, access to BLM land, off-road vehicle designations, oil and gas leasing and development, hardrock mining, riparian and wetland management of watersheds, elk and bighorn sheep habitat management, prairie dog and black-footed ferret management, and areas with special management concerns.

The preferred alternative and four other alternatives have been developed to provide management options for resolving the issues. The alternatives include Alternative A-Current Management (No Action); Alternative B; Alternative C; Alternative D; and Alternative E-The Preferred Alternative. The preferred alternative plus the guidance given in the Management Common To All Alternatives section constitutes the proposed final plan.

ACRONYMS

ACEC	Area of Critical Environmental Concern	MLA	Mineral Leasing Act
AIRFA	American Indian Religious Freedom Act	MMBF	Million Board Feet
ATV	All Terrain Vehicle	MMCF	Million Cubic Feet
AMP	Allotment Management Plan	MMS	Minerals Management Services
AO	Authorized Officer	MOU	Memorandum of Understanding
APD	Application for Permit to Drill	MTNHP	Montana Natural Heritage Program
APHIS	Animal and Plant Health Inspection Service	NAERC	North American Electric Reliability Council
ARPA	Archaeological Resources Protection Act	NAWMP	North American Waterfowl Management Plan
AUM	Animal Unit Month	NEPA	National Environmental Policy Act
BACT	Best Available Control Technology	NHPA	National Historic Preservation Act
BIA	Bureau of Indian Affairs	NOS	Notice of Staking
BLM	Bureau of Land Management	NRHP	National Register of Historic Places
BMP	Best Management Practices	NSO	No Surface Occupancy
BR	Bureau of Reclamation	NTL	Notice To Lessee
CEQ	Council on Environmental Quality	ONA	Outstanding Natural Area
CER	Categorical Exclusion Review	OPT	Ounces per Ton
CERCLA	Comprehensive Environmental, Response, Compensation, and Liability Act	ORV	Off-Road Vehicles
CFR	Code of Federal Regulations	PD	Public Domain
CMR	Charles M. Russell National Wildlife Refuge	PILT	Payment In Lieu of Taxes
COE	Corps of Engineers	PL	Public Law
CRMP	Coordinated Resource Management Plan	PLO	Public Land Order
CRP	Conservation Reserve Program	PNC	Potential Natural Community
DSL	Montana Department of State Lands	PSC	Powersite Classification
EA	Environmental Assessment	PSD	Prevention of Significant Deterioration
EIS	Environmental Impact Statement	PSR	Powersite Reserve
EO	Executive Order	RA	Resource Area
EPA	Environmental Protection Agency	RFD	Reasonable Foreseeable Development
ESA	Endangered Species Act	RMA	Recreation Management Area
FLPMA	Federal Land Policy Management Act	RMP	Resource Management Plan
FMZ	Fire Management Zone	ROD	Record of Decision
FOOGLRA	Federal Onshore Oil and Gas Leasing Reform Act	ROW	Right-of-Way
FR	Federal Register	R&PP	Recreation and Public Purposes
FS	United States Forest Service	SCS	Soil Conservation Service
FUP	Free Use Permit	SEP	State Equalization Payment
FWS	United States Fish and Wildlife Service	SHPO	State Historic Preservation Office
HMP	Habitat Management Plan	SO	Secretarial Order
IBLA	Interior Board of Land Appeals	SOP	Standing Operating Procedures
IPM	Integrated Pest Management	SPG	Supplemental Program Guidance
ITRR	Institute for Tourism and Recreation Research	SRMA	Special Recreation Management Area
JVP	Judith Valley Phillips	SSS	Special Status Species
KGRA	Known Geothermal Resource Area	TDS	Total Dissolved Solids
LCNHT	Lewis and Clark National Historic Trail	T&E	Threatened and Endangered
LU	Land Utilization	TPD	Tons per Day
MBF	Thousand Board Feet	UMNWSR	Upper Missouri National Wild & Scenic River
MBFCC	Montana Black-Footed Ferret Coordination Committee	URA	Unit Resource Analysis
MCF	Thousand Cubic Feet	USDI	United States Department of Interior
MDFWP	Montana Department of Fish, Wildlife & Parks	USGS	United States Geological Survey
MFP	Management Framework Plan	VRM	Visual Resource Management
		VUD	Visitor User Day
		WSA	Wilderness Study Area
		WSR	Wild and Scenic River System
		WSRA	Wild and Scenic River Act

PURPOSE

This Judith-Valley-Phillips Resource Management Plan addresses future management options for approximately 2.8 million BLM surface acres and 3.4 million acres of federal mineral estate administered by the Bureau of Land Management. These lands are managed through the Judith, Valley and Phillips Resource Areas in the BLM Lewistown District in northcentral Montana.

PLANNING ISSUES

Nine issues were identified through public participation, resource monitoring and policy mandates during the scoping process. These issues reflect concerns or conflicts which could be partially or totally resolved through this RMP/EIS.

Land Acquisition and Disposal

Some lands in the planning area could provide access to BLM land or contain riparian and wetland values, wildlife habitat, cultural resources or other significant values. There is growing public interest in acquiring such resources or values and holding them in public ownership.

Some BLM lands meet disposal criteria and do not contain significant resource values and could facilitate acquisitions to consolidate land holdings for BLM and other federal agencies and transfer land to private use and production.

Access to BLM Land

Legal public access is the public's ability to get to BLM land. From a management standpoint, access can be critical to protecting resource values from misuse or overuse, or in providing a more complete use of a resource. From a public standpoint, access to public land has become an issue of national significance. The need for legal public access to BLM land is increasing, requiring that most BLM land be made accessible.

Off-Road Vehicle Designations

Current BLM off-road vehicle (ORV) designations identify areas as open, limited or closed to ORVs. In recent years,

managing ORV use has become entwined with other BLM land uses such as access and recreation in portions of the planning area. Public interest and expectations require that BLM analyze different combinations of these ORV designations as a means of reducing resource damage and user conflicts while still allowing use where appropriate.

Oil and Gas Leasing and Development

BLM anticipates continued oil and gas exploration and development on BLM land and is responsible for oil and gas leasing on BLM-administered subsurface, regardless of surface ownership. BLM will evaluate the types of stipulations needed on oil and gas leases to protect other resources.

Hardrock Mining

BLM is expecting increased locatable mineral activity on BLM land, especially in historically active areas such as the Moccasin, Judith and Little Rocky Mountains. BLM is also expecting increased public interest concerning this type of development in central Montana. BLM guidance requires that mining operations include adequate and responsible measures to prevent unnecessary or undue degradation of federal lands and to provide for reasonable reclamation.

Riparian and Wetland Management of Watersheds

Increased public interest about the quality of riparian and wetland areas requires evaluating conditions, trends and management techniques for these resources. BLM's goal is to restore and maintain riparian-wetland areas so that 75% or more are in proper functioning condition by 1997 (BLM Riparian-Wetland Initiative for the 1990's). Improving or maintaining riparian-wetland areas on BLM land to proper functioning condition and the desired plant community would decrease sedimentation while increasing stream bank stability, vegetation production, wildlife habitat, waterfowl production, recreation opportunities and maintaining or improving water quality. These potentials are becoming more important to the general public, private landowners and land managers.

Elk and Bighorn Sheep Habitat Management

BLM land is capable of supporting expanded elk and bighorn sheep populations. Increased populations could increase hunting opportunities, but could also increase the potential for elk depredation and landowner conflicts on adjacent private land. This issue is complicated because the Montana Department of Fish, Wildlife and Parks manages wildlife populations while BLM manages wildlife habitat on BLM land.

Prairie Dogs and Black-Footed Ferret Management

BLM is required by the Endangered Species Act of 1973, as amended, to carry out programs for the conservation of threatened and endangered species. A block of land of mixed ownership (BLM, Charles M. Russell National Wildlife Refuge, Montana Department of State Lands, and private) in the Phillips RA supports prairie dog populations and habitat suitable for the endangered black-footed ferret and is key to the recovery of the black-footed ferret in the United States.

The issue is complicated by concerns about prairie dog expansion; habitat needs for species associated with prairie dog towns; and concerns by grazing permittees, prairie dog shooters and local business operators that their interests are threatened.

Areas with Special Management Concerns

The RMP/EIS evaluated the eligibility of rivers and streams within the planning area for further study as potential components of the National Wild and Scenic Rivers System.

Some BLM lands possess special values and may need management emphasis to protect or preserve those values. These areas have scenic values, rare plant communities, cultural sites, rare geologic features, threatened or endangered species habitat, cave resources or archaeological resources that qualify them for study as potential areas of critical environmental concern.

THE ALTERNATIVES

The formulation and analysis of alternatives is required by the Council of Environmental Quality regulations for implementing the National Environmental Policy Act (40 CFR 1500.2(e)) and BLM resource planning regulations (43 CFR 1610.4-5). The goal of each alternative is to resolve the issues. Each alternative, in conjunction with the

Management Common To All Alternatives guidance presents a complete and reasonable guide to future management of BLM land and resources. Current management of non-issue resources and programs will continue under each alternative considered and is described in the Management Common To All Alternatives portion of Chapter 2.

Several alternatives were considered during the formulation process but were dropped from detailed study because they were unreasonable or did not adequately address the planning issues.

Five alternatives were developed and analyzed in detail. The major management actions and environmental consequences of the five alternatives analyzed in detail are shown in Tables S.1 and S.2. Alternative E, as modified by public comments on the draft RMP/EIS, has been selected as the proposed Resource Management Plan.

ALTERNATIVE E (THE PREFERRED ALTERNATIVE)

Land Acquisition and Disposal

BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment under this land use plan. The main objective would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability.

A total of 161,968 acres of BLM land would be available for disposal. The lands identified for disposal would be available for exchange or these lands may also be available for sale to facilitate an individual land exchange or meet other plan objectives.

During any purchase or exchange action, BLM would attempt to maintain the respective county tax base and allow no overall net gain in BLM land over the life of this plan. BLM would monitor land tenure adjustments to identify potential problems in achieving this objective. Sale of BLM land may occur to help facilitate a purchase or exchange action or maintain the respective county tax base.

Access to BLM Land

BLM has identified 71,793 BLM acres as needing new legal public access and 1,126,858 BLM acres as needing additional access. Access would be pursued utilizing existing laws, regulations and guidelines. During activity planning and/

or route analysis, access may be defined as foot, horse, or vehicular. Access would be confined to as narrow a corridor as is necessary to serve such purpose.

BLM would support the public road network, primarily county roads, leading to BLM land by establishing limited cooperative agreements for maintenance with the respective counties.

Off-Road Vehicle Designations

BLM would designate 1,990,441 BLM acres open to off-road vehicles to provide for cross-county travel; designate 813,769 BLM acres limited to protect the resource values in ACECs and WSAs, protect vegetation and soils to maintain watersheds and water quality, reduce user conflicts, and provide habitat security; and close 1,947 BLM acres to protect the resource values in the Square Butte ONA ACEC.

The following exceptions would apply to the limited designations, except in the WSAs and ACECs:

1. Vehicle access for camping would be permissible within 100 yards of designated roads and trails. Exceptions could be granted on a case-by-case basis through the use of a special use permit.
2. The non-ambulatory handicapped, as defined by Montana Law, would be allowed motorized access off designated roads and trails.
3. Snowmobiles would be allowed off-road travel on BLM land in the Little Belt and Snowy Mountains.
4. Off-road vehicle use would be allowed for game retrieval. In some areas, retrieval may be limited to a specified time period.

BLM would pursue cooperative agreements with state and local law enforcement agencies and use BLM law enforcement rangers to monitor and implement restrictions.

Off-road travel for administration of a federal lease or permit, unless specifically prohibited, is granted.

Oil and Gas Leasing and Development

BLM would provide for oil and gas exploration and development, while protecting other resource values through: standard lease terms; stipulations on 1,760,426 BLM acres; No Surface Occupancy restrictions on 34,818 BLM acres; and closing WSAs and the Azure Cave ACEC (117,962 BLM acres).

Exploration and development of current leases would be governed by their respective stipulations, until these leases expire. As current leases expire, the areas would come under the management guidelines of this document.

Hardrock Mining

BLM would provide for hardrock mineral development, while protecting other resources of exceptional value through withdrawal from mineral entry or with special management prescriptions. BLM would segregate 4,647 BLM acres from mineral entry including; 100 acres high, 100 acres moderate, 60 acres low and 4,387 acres very low mineral development potential.

BLM would recommend revoking the withdrawals for the Judith Peak and Red Mountain Radar Sites, the Landusky Town Site, Landusky Recreation Site and the Zortman Town Site. BLM would continue the Blacktail Fossil Site, Azure Cave, Camp Creek Campground and Montana Gulch Campground withdrawals.

BLM would pursue protective withdrawals for the Big Bend of the Milk River ACEC to protect the area from any possible bentonite mining; the Square Butte ONA to segregate the area from locatable mineral entry to protect natural endemic systems, cultural sites, scenic qualities and rare geologic features unique to Montana; and the Zortman Cemetery.

To ensure orderly development of mineral resources while protecting other resource values, management prescriptions would be applied to Plans of Operation in the Judith Mountains Scenic Area ACEC, elk habitat in the Judith and North Moccasin Mountains and bighorn sheep habitat in the Little Rocky Mountains. Mitigating measures would be applied to all Plans of Operation to prevent unnecessary or undue degradation.

Riparian and Wetland Management of Watersheds

BLM would maintain and/or improve the riparian-wetland areas in 348 allotments with 595 BLM stream miles and 5,850 BLM water sources based on proper functioning condition and the desired plant community.

BLM would initially accomplish riparian-wetland objectives through livestock grazing methods at current stocking levels. If grazing methods are not successful in meeting management objectives, BLM would take the necessary action to achieve those objectives. When the trend in riparian and wetland conditions is improving, the prescribed grazing method should be continued even if the riparian-wetland objectives are not achieved in the stated time frame.

To accomplish the above riparian-wetland objectives BLM would consider the importance of the intermingled private lands, including valuable riparian-wetland areas, which could be adversely impacted as a result of management changes on BLM land.

Elk and Bighorn Sheep Habitat Management

BLM would provide 593,980 acres of habitat for elk on BLM land in the Missouri Breaks, Highwood Mountains, Square Butte, Little Belt Mountains, Judith Mountains, and Little and Big Snowy Mountains.

BLM would also provide 156,930 acres of habitat to maintain and expand bighorn sheep on BLM land in the planning area.

BLM would plant lure crops on BLM land where determined to be necessary and feasible to draw elk from private crop land where depredation conflicts are occurring. Planting lure crops would be considered for small areas and management to protect lure crops could include fencing, grazing methods, or a change in season of use for livestock. Planting and maintenance of lure crops would be most feasible under a cooperative arrangement with MDFWP, other organizations or individuals.

Prairie Dog and Black-Footed Ferret Management

BLM would provide prairie dog habitat for black-footed ferret reintroduction and long-term ferret recovery, associate species (mountain plover, burrowing owl, and ferruginous hawk), recreational viewing, and prairie dog shooting. Prairie dog towns on BLM land identified for reintroduction of the black-footed ferret would be designated an ACEC (12,346 acres). This habitat may also help prevent the listing of the mountain plover, burrowing owl and ferruginous hawk as threatened or endangered. If one of these species would become listed, BLM would consult with the FWS to assure this RMP meets the habitat needs. If this plan would not meet those needs, BLM would amend this RMP.

BLM, in cooperation with the FWS and MDFWP, would maintain the existing prairie dog habitat and distribution on BLM land within the 7km Complex based on a 1988 survey. BLM would also support cooperative agreements for prairie dog towns on CMR, DSL, and private land within the 7km Complex. The 7km Complex contains approximately 26,000 acres of prairie dog towns (12,346 BLM acres, 5,800 CMR acres, 2,012 DSL acres and 5,821 private acres) as shown on Map 7 in the back of this document. Management

actions would be directed to cooperatively maintain this amount of prairie dog habitat.

Judith Mountains Scenic Area ACEC

BLM would designate 3,702 BLM acres an ACEC to protect the scenic, wildlife and recreation values in the Judith Mountains. Designation of an ACEC only applies to public lands administered by BLM. This area would be managed to mitigate impacts to resources from surface disturbing activities.

BLM would implement the following management actions: off-road travel would be restricted yearlong to designated roads and trails; the ACEC would be an avoidance area for ROWs; oil and gas leases would contain a controlled surface use stipulation for visual resources; the area would be available for restricted management of forest products; and the area would remain open to mineral entry.

Acid Shale-Pine Forest ACEC

BLM would designate two representative BLM tracts, War Horse (817 acres) and Briggs Coulee (1,646 acres), within an Acid Shale-Pine Forest ecosystem a Research Natural Area ACEC to protect an endemic plant community unique to the area and a fragile watershed. Designation of an ACEC only applies to public lands administered by BLM. The ACEC would be a Research Natural Area where research would be allowed to determine the effects of grazing, fire, etc. on this type of plant community. BLM would allow research at War Horse and maintain Briggs Coulee as a control site.

BLM would implement the following management actions: disposal of forest products from the area would be prohibited unless necessary for stand preservation; the area would receive intensive wildfire suppression; ORV use would be restricted yearlong to designated roads and trails; the ACEC would be leased for oil and gas with standard lease terms; and the ACEC would remain open to mineral entry.

Square Butte Outstanding Natural Area ACEC

BLM would designate 1,947 BLM acres an ACEC to protect natural endemic systems, cultural sites, scenic qualities, rare geologic features unique to Montana and identify key wildlife viewing sites under the Watchable Wildlife Program. Designation of an ACEC only applies to public lands administered by BLM. This area would be managed primarily for wildlife, cultural resources and recreation.

BLM would implement the following management actions: pursue a protective withdrawal for Square Butte to segregate the area from mining claim location; a 1/4-mile perimeter at the outer edge of the Butte would be available for oil and gas leasing with No Surface Occupancy restrictions if Congress does not designate Square Butte as wilderness; legal access would be pursued to the ACEC; the area would be closed to ORVs; surface disturbing activities would be prohibited including transmission lines, roads, communication sites, pipelines, etc.; recreation and habitat management plans for the area would include a trail system, camping areas, a recreation use policy and habitat management direction for wildlife populations including prescribed fire, security areas, etc.; and the sale of forest products would be prohibited, unless necessary for stand preservation.

Collar Gulch ACEC

This area would not be designated an ACEC, the area would be open to mineral entry and current management practices would continue. Current management would include the evaluation of alternate mine operating practices and mitigating measures during technical review and environmental analysis of individual Plans of Operations. The Montana Water Quality Act imposes a nondegradation policy for Collar Gulch Creek.

Azure Cave ACEC

BLM would designate 140 BLM acres an ACEC to protect cave resources and potentially the northernmost bat hibernaculum in the United States. Designation of an ACEC only applies to public lands administered by BLM.

The cave would be managed to protect bats during crucial hibernation periods and allow specific and general recreation use on a limited basis.

BLM would implement the following management actions: prepare an activity plan to determine time periods for cave access and initiate appropriate management activities to protect the bats; continue the withdrawal from mining claim location; the area would be closed to oil and gas leasing; additional legal access would be pursued but limited to an unimproved road; and ORVs would be restricted yearlong to designated roads and trails.

Big Bend of the Milk River ACEC

BLM would designate 2,120 BLM acres within the Big Bend of the Milk River area, which includes the Henry Smith and Beaucoup Sites, an ACEC to manage archaeological resources representing bison hunting and prehistoric ceremonial use of the Northwestern Plains. The Henry Smith Site would be managed for interpretation and the Beaucoup Site for research. Designation of an ACEC only applies to public lands administered by BLM.

BLM would implement the following management actions: consult with appropriate Native Americans to ensure that an activity plan is developed with sensitivity to Native American cultural values; ORVs would be restricted yearlong to designated roads and trails; the area would be withdrawn from mineral location and withheld from solid mineral leaseables; the Henry Smith Site would be open to oil and gas leasing with No Surface Occupancy restrictions and the Beaucoup Site would be open to oil and gas leasing with standard lease terms.

TABLE S.1
SUMMARY OF ALTERNATIVES

LAND ACQUISITION AND DISPOSAL

ALTERNATIVE A (CURRENT)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E (PREFERRED)
BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment. The main objectives would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability.	BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment. The main objectives would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability.	BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment. The main objectives would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability.	BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment. The main objectives would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability.	BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment. The main objectives would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability.
BLM land identified for disposal would total 166,021 acres.	BLM land identified for disposal would total 166,021 acres.	BLM land identified for disposal would total 166,021 acres.	BLM land identified for disposal would total 166,021 acres.	BLM land identified for disposal would total 161,968 acres.

ACCESS TO BLM LAND

ALTERNATIVE A (CURRENT)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E (PREFERRED)
BLM would pursue access in the public interest while properly managing access within the Bureau's multiple-use mandate. Access would be sought for administrative purposes, for authorized users and for the general public.	BLM would not pursue new or additional access to BLM land, but would maintain existing access. BLM would support the public road network, primarily county roads, leading to BLM land by establishing limited cooperative agreements for maintenance with the respective counties.	Access would be pursued to BLM land where no legal public access exists. Access would provide improved land management and use by the public. BLM has identified 71,793 acres needing new legal public access.	Access would be pursued to BLM land where no legal public access exists and/or where additional access to BLM land is needed. Access would provide for improved land management and use by the public. BLM has identified 71,793 acres needing new legal public access and 1,126,858 acres needing additional access.	Access would be pursued to BLM land where no legal public access exists and/or where additional access to BLM land is needed. Access would provide for improved land management and use by the public. BLM has identified 71,793 acres needing new legal public access and 1,126,858 acres needing additional access.

OFF-ROAD VEHICLES

ALTERNATIVE A (CURRENT)

BLM would restrict ORV use yearlong (428,770 acres) or close specific areas (1,947 acres) to protect resource values, wilderness values in the WSAs, vegetative cover and fragile soils.

Other BLM land (2,375,440 acres) would remain open to ORV use to provide cross-country travel.

ALTERNATIVE B

BLM would maximize opportunities for ORV use to provide unrestricted cross-country travel and ORV recreation. ORV use in the WSAs would be restricted yearlong (116,640 acres). The Square Butte ONA (1,947 acres) would be closed to all motorized vehicle travel.

Other BLM land (2,687,570 acres) would remain open to ORV use to provide cross-country travel.

ALTERNATIVE C

BLM would restrict ORV use yearlong (121,206 acres) and seasonally (862,709 acres) or close specific areas (3,805 acres) to reduce user conflicts, provide watershed and vegetative cover, reduce harassment of wildlife and provide habitat security, protect the resource values in ACECs, protect habitat on core towns for potential black-footed ferret reintroduction and protect wilderness values in the WSAs.

Other BLM land (1,818,437 acres) would remain open to ORV use to provide for cross-country travel including a designated intensive ORV use area (40 acres) for competitive events such as races and rallies.

ALTERNATIVE D

BLM would restrict ORV use yearlong (657,667 acres) and seasonally (2,127,480 acres) or close specific areas (20,970 acres) to protect the resource values in ACECs, protect wilderness values in the WSAs, protect vegetative cover to maintain watersheds and water quality, reduce user conflicts, reduce harassment of wildlife and provide habitat security, and protect habitat on primary and secondary prairie dog towns for potential black-footed ferret reintroduction.

BLM would provide an intensive ORV use (40 acres) for competitive events such as races and rallies.

ALTERNATIVE E (PREFERRED)

BLM would restrict ORV use yearlong (157,473 acres) and seasonally (656,296 acres) or close specific areas (1,947 acres) to protect the resource values in ACECs, protect wilderness values in the WSAs, protect vegetation and soils to maintain watersheds and water quality, reduce user conflicts, and reduce harassment of wildlife and provide habitat security.

Other BLM land (1,990,441 acres) would remain open to ORV use to provide for cross-country travel including a designated intensive ORV use area (40 acres) for competitive events such as races and rallies.

Exceptions would apply to limited designations for camping, non-ambulatory handicapped, snowmobiles and game retrieval.

ALTERNATIVE A (CURRENT)

BLM would protect surface resource values on lands open to oil and gas leasing. Land available for oil and gas leasing would be subject to standard stipulations (3,231,201 acres), special stipulations (874 acres), No Surface Occupancy restrictions (17,810 acres) or closed to oil and gas leasing (137,802 acres).

ALTERNATIVE B

BLM would provide the maximum oil and gas exploration and development opportunities by leasing land with minimum lease stipulations. BLM land would be open to oil and gas leasing with standard terms only (3,269,725 acres). WSAs would remain closed to oil and gas leasing (117,962 acres).

ALTERNATIVE C

BLM would provide for oil and gas exploration and development, while protecting other resource values. Land available for oil and gas leasing would be subject to standard terms only (3,231,201 acres), stipulations (874 acres), No Surface Occupancy restrictions (17,810 acres) or closed to oil and gas leasing (137,802 acres).

ALTERNATIVE D

BLM would provide stipulations to protect resource values identified as conflicting with oil and gas exploration and development. Land available for oil and gas leasing would be subject to standard terms only (441,495 acres), stipulations (767,811 acres), No Surface Occupancy restrictions (2,034,819 acres) or closed to oil and gas leasing (143,562 acres).

ALTERNATIVE E (PREFERRED)

BLM would provide for oil and gas exploration and development, while protecting other resource values. Land available for oil and gas leasing would be subject to standard terms only (1,474,481 acres), stipulations (1,760,426 acres), No Surface Occupancy restrictions (34,818 acres) or closed to oil and gas leasing (117,962 acres).

OIL AND GAS LEASING AND DEVELOPMENT

HARDROCK MINING

ALTERNATIVE A (CURRENT)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E (PREFERRED)
BLM would provide for hardrock exploration and development while mitigating impacts to other resources. Management emphasis would be on preventing unnecessary or undue degradation by applying mitigating measures on a project specific basis during Notice review or plan approval. BLM withdrawals would segregate 2,653 acres from mineral entry.	BLM would provide for hardrock exploration and development by using minimum constraints on mineral activity while still maintaining compliance with mandatory federal, state and local laws, regulations and requirements. BLM withdrawals would segregate 320 acres from mineral entry.	BLM would provide for hardrock exploration and development while protecting other resources of exceptional value with special management prescriptions. BLM withdrawals would segregate 2,447 acres from mineral entry.	BLM would protect certain sensitive areas by withdrawing them from location and entry under the mining laws. Sensitive areas would include some areas with scenic values, some crucial elk and bighorn sheep habitat and certain potential ACECs. BLM withdrawals would segregate 50,533 acres from mineral entry.	BLM would provide for hardrock exploration and development, while protecting other resources of exceptional value through withdrawal from mineral entry or with special management prescriptions. BLM withdrawals would segregate 4,647 acres from mineral entry.

RIPARIAN AND WETLAND MANAGEMENT OF WATERSHEDS

ALTERNATIVE A (CURRENT)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E (PREFERRED)
BLM would maintain and/or improve riparian-wetland areas in 270 allotments with 498 stream miles and 4,118 water sources. The objective would be to protect existing riparian-wetland areas and improve potential areas for waterfowl and wildlife habitat.	BLM would maintain and/or improve riparian-wetland areas in 192 allotments with 369 stream miles and 3,480 water sources. The objective would be to improve or maintain riparian-wetland areas to proper functioning condition and to provide wildlife habitat.	BLM would maintain and/or improve riparian-wetland areas in 421 allotments with 556 stream miles and 5,910 water sources. The objective would be to improve or maintain riparian-wetland areas to proper functioning condition and desired plant community to provide wildlife habitat, increase waterfowl habitat and improve watershed conditions.	BLM would maintain and/or improve riparian-wetland areas in 647 allotments with 599 stream miles and 6,387 water sources. The objective would be to improve or maintain riparian-wetland areas to proper functioning condition and desired plant community to provide wildlife habitat, increase waterfowl habitat and improve watershed conditions.	BLM would maintain and/or improve riparian-wetland areas in 348 allotments with 595 stream miles and 5,950 water sources. The objective would be to improve or maintain riparian-wetland areas to proper functioning condition and desired plant community to provide wildlife habitat, increase waterfowl habitat and improve watershed conditions.

ELK AND BIGHORN SHEEP HABITAT MANAGEMENT

ALTERNATIVE A (CURRENT)

BLM would maintain elk habitat in the Missouri Breaks, Highwood Mountains and Little Belt Mountains and provide habitat for elk expansion on BLM land, where forage is available, in the Missouri Breaks, Square Butte, and Judith, North Moccasin and Snowy Mountains (593,980 acres).

BLM would maintain bighorn sheep habitat in the Little Rocky Mountains and Missouri Breaks and provide habitat for bighorn sheep expansion, where forage is available, in the Chimney Bend area (84,711 acres).

ALTERNATIVE B

BLM would maintain elk habitat in the Missouri Breaks, Square Butte, and Highwood, Little Belt, Judith, North Moccasin, and Snowy Mountains (593,980 acres).

BLM would maintain bighorn sheep habitat in the Little Rocky Mountains and Missouri Breaks (66,788 acres).

ALTERNATIVE C

BLM would maintain elk habitat in the Missouri Breaks, Highwood Mountains and Little Belt Mountains and provide habitat for elk expansion on BLM land, where forage is available, in the Missouri Breaks, Square Butte, and Judith, North Moccasin and Snowy Mountains (593,980 acres).

BLM would maintain bighorn sheep habitat in the Little Rocky Mountains and Missouri Breaks and provide habitat for bighorn sheep expansion, where forage is available, in the Chimney Bend area (84,711 acres).

ALTERNATIVE D

BLM would maintain or provide elk habitat for expansion in the Missouri Breaks, Square Butte, and Highwood, Little Belt, Judith, Moccasin, and Snowy Mountains (660,140 acres).

BLM would maintain or provide habitat for expansion in the Little Rocky Mountains, Missouri Breaks, Larb Hills, Chimney Bend and Bull Creek area (156,930 acres).

ALTERNATIVE E (PREFERRED)

BLM would maintain elk habitat on BLM land in the Missouri Breaks, Square Butte, and Highwood, Little Belt, Judith, and Snowy Mountains (593,980 acres).

BLM would maintain or provide habitat for expansion in the Little Rocky Mountains, Missouri Breaks, Larb Hills, Chimney Bend and Bull Creek area (156,930 acres).

PRAIRIE DOG AND BLACK-FOOTED FERRET MANAGEMENT

ALTERNATIVE A (CURRENT)

BLM would provide 3,308 acres of scattered prairie dog towns in the Phillips RA for black-footed ferret reintroduction, associate species, recreational viewing and temporary prairie dog shooting.

BLM would eliminate prairie dog towns on 10,013 acres to stabilize the watershed and improve range condition.

BLM would also provide 770 acres of prairie dog towns for associate species in the Valley RA.

ALTERNATIVE B

BLM would provide 6,462 acres of prairie dog towns in the Phillips RA for black-footed ferret reintroduction, associate species, recreational viewing and prairie dog shooting. BLM land would be designated an ACEC.

BLM would eliminate prairie dog towns on 6,859 acres to stabilize the watershed and improve range condition.

BLM would also provide 770 acres of prairie dog towns for associate species in the Valley RA.

ALTERNATIVE C

BLM would provide 7,367 acres of prairie dog towns in the Phillips RA for black-footed ferret reintroduction, associate species, and recreational viewing. BLM land would be designated an ACEC. BLM would also provide 4,624 acres for prairie dog shooting.

BLM would eliminate prairie dogs on 1,330 acres to stabilize the watershed and improve range condition.

BLM would also provide 770 acres of prairie dog towns for associate species in the Valley RA.

ALTERNATIVE D

BLM would provide 12,105 acres of prairie dog towns in the Phillips RA for black-footed ferret reintroduction, associate species and recreational viewing. BLM land would be designated an ACEC. BLM would initially provide 1,115 acres of prairie dog towns in the Phillips RA for prairie dog shooting and allow expansion on another 8,885 acres.

Prairie dog towns would be allowed to expand to 5,000 acres in both the Valley and Judith RAs.

ALTERNATIVE E (PREFERRED)

BLM would provide 12,346 acres of prairie dog towns in the Phillips RA for black-footed ferret reintroduction, associate species, recreational viewing and prairie dog shooting. BLM land would be designated an ACEC.

BLM would maintain or manage the existing prairie dog towns in the Valley (800 acres) and Judith (71 acres) RAs.

JUDITH MOUNTAINS SCENIC AREA

ALTERNATIVE A (CURRENT)

BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE B

BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE C

BLM would designate 4,566 acres an ACEC to protect the scenic qualities of the visual resources in the Judith and South Moccasin Mountains. This area would be managed to protect the visual resources from surface disturbing activities. Surface disturbing activities would not be allowed which could not be mitigated and reclaimed to natural conditions.

ALTERNATIVE D

BLM would designate 4,566 acres an ACEC to protect the scenic qualities of the visual resources in the Judith and South Moccasin Mountains. This area would be managed to protect the visual resources from surface disturbing activities. The area would be withdrawn from mineral entry and surface disturbing activities would not be allowed which could not be mitigated and reclaimed to natural conditions.

ALTERNATIVE E (PREFERRED)

BLM would designate 3,702 acres an ACEC to protect the scenic, wildlife and recreation values in the Judith Mountains. This area would be managed to mitigate impacts to resources from surface disturbing activities.

ACID SHALE-PINE FOREST

ALTERNATIVE A (CURRENT)

BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE B

BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE C

BLM would designate 817 acres within the Acid Shale-Pine Forest ecosystem an ACEC to protect an endemic plant community unique to the area and a fragile watershed.

ALTERNATIVE D

BLM would designate 3,619 acres within the Acid Shale-Pine Forest range an ACEC to protect an endemic plant community unique to the area. This area contains four tracts of BLM land; War Horse, Briggs Coulee, Chippewa Creek and Ford's Creek.

ALTERNATIVE E (PREFERRED)

BLM would designate two representative BLM tracts, War Horse (817 acres) and Briggs Coulee (1,646 acres), within an Acid Shale-Pine Forest ecosystem an ACEC to protect an endemic plant community unique to the area and a fragile watershed.

SQUARE BUTTE ONA

ALTERNATIVE A (CURRENT)

BLM would designate 1,947 acres an ACEC to protect natural endemic systems, cultural resource sites, scenic qualities, and rare geologic features unique to Montana. Current management would continue.

ALTERNATIVE B

BLM would designate 1,947 acres an ACEC to protect natural endemic systems, cultural resource sites, scenic qualities, and rare geologic features unique to Montana. The area would be open to mining claim location.

ALTERNATIVE C

BLM would designate 1,947 acres an ACEC to protect natural endemic systems, cultural resource sites, scenic qualities, and rare geologic features unique to Montana.

ALTERNATIVE D

BLM would designate 1,947 acres an ACEC to protect natural endemic systems, cultural resource sites, scenic qualities, and rare geologic features unique to Montana.

ALTERNATIVE E (PREFERRED)

BLM would designate 1,947 acres an ACEC to protect natural endemic systems, cultural resource sites, scenic qualities, and rare geologic features unique to Montana.

COLLAR GULCH

ALTERNATIVE A (CURRENT)
BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE B
BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE C
BLM would designate 1,160 acres an ACEC to protect a pure strain of westslope cutthroat trout, which is a Montana State Species of Special Concern. The area's primary emphasis would be on protecting wildlife (westslope cutthroat trout) habitat and nonmotorized recreational use.

ALTERNATIVE D
BLM would designate 1,618 acres an ACEC to protect a pure strain of westslope cutthroat trout which is a Montana State Species of Special Concern. The area would be withdrawn from mineral entry. The primary emphasis would be on wildlife habitat protection and improvement for the westslope cutthroat trout population, with some associated nonmotorized recreational use.

ALTERNATIVE E (PREFERRED)
BLM would not designate the area an ACEC and the area would remain open to mineral entry.

AZURE CAVE

ALTERNATIVE A (CURRENT)
BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE B
BLM would not designate the area an ACEC and the gate to the entrance would be removed and the withdrawal revoked.

ALTERNATIVE C
BLM would designate 479 acres an ACEC to protect cave resources and potentially the northernmost bat hibernaculum in the United States.

ALTERNATIVE D
BLM would designate 479 acres an ACEC to protect cave resources and potentially the northernmost bat hibernaculum in the United States.

ALTERNATIVE E (PREFERRED)
BLM would designate 140 acres an ACEC to protect cave resources and potentially the northernmost bat hibernaculum in the United States.

BIG BEND OF THE MILK RIVER

ALTERNATIVE A (CURRENT)
BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE B
BLM would not designate the area an ACEC and current management would continue.

ALTERNATIVE C
BLM would designate 2,120 acres within the Henry Smith and Beaucoup Sites an ACEC to protect unusual and unique archaeological resources representing bison hunting and prehistoric ceremonial use of the Northwestern Plains.

ALTERNATIVE D
BLM would designate 10,720 acres within the Henry Smith and Beaucoup Sites an ACEC to protect unusual and unique archaeological resources representing bison hunting and prehistoric ceremonial use of the Northwestern Plains. The area would be withdrawn from mineral entry.

ALTERNATIVE E (PREFERRED)
BLM would designate 2,120 acres within the Henry Smith and Beaucoup Sites an ACEC to protect unusual and unique archaeological resources representing bison hunting and prehistoric ceremonial use of the Northwestern Plains. The area would be withdrawn from mineral entry.

TABLE S.2
SUMMARY OF THE ENVIRONMENTAL CONSEQUENCES

IMPACTS TO OIL AND GAS

Land Acquisition and Disposal	Alternative A (Current) An increase in split surface from mineral estate; a minor negative impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Access to BLM Land	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C No impact.	Alternative D The process of obtaining access to leased land would be simplified; a minor positive impact.	Alternative E (Preferred) Same as D.
Off-Road Vehicles	Alternative A (Current) No impact.	Alternative B Most land open to ORV use would simplify geophysical exploration activity; a positive impact.	Alternative C Land restricted yearlong to ORVs would complicate geophysical exploration activity; a minor negative impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Oil and Gas Leasing and Development	Alternative A (Current) Most of the high and moderate development potential land (95%) would be available for oil and gas exploration and development with standard or special stipulations; a positive impact.	Alternative B The maximum amount of land (97%) would be open to oil and gas exploration and development with standard lease terms; a positive impact.	Alternative C Most of the high and moderate development potential land (92%) would be available for oil and gas exploration and development with standard lease terms and stipulations; a positive impact.	Alternative D Only 36% of the high and moderate development potential land would be available for oil and gas exploration and development with standard lease terms and stipulations; a negative impact.	Alternative E (Preferred) Most of the high and moderate development potential land (96%) would be available for oil and gas exploration and development with standard lease terms and stipulations; a positive impact.
Riparian and Wetland Management of Watersheds	Alternative A (Current) No impact.	Alternative B More access to water sources; a positive impact.	Alternative C No impact.	Alternative D Acquiring riparian wetland areas could potentially restrict some areas along streams and rivers; a negative impact.	Alternative E (Preferred) Same as D.
Elk and Bighorn Sheep Habitat Management	Alternative A (Current) Seasonal restrictions would apply to 571,000 acres and 14,000 acres would be leased with No Surface Occupancy restrictions; a minor negative impact.	Alternative B Standard terms could move or delay exploration activities; a minor negative impact.	Alternative C Seasonal restrictions would apply to winter range; a minor negative impact.	Alternative D No Surface Occupancy restrictions would apply to winter range; a negative impact.	Alternative E (Preferred) Same as C.
Prairie Dog and Black-Footed Ferret Management	Alternative A (Current) No Surface Occupancy restrictions would apply to 10,680 acres; a negative impact.	Alternative B Standard terms would move or delay exploration activities; a minor negative impact.	Alternative C No Surface Occupancy restrictions would apply to 70,000 acres; a negative impact.	Alternative D No Surface Occupancy restrictions would apply to 400,000 acres; a negative impact.	Alternative E (Preferred) A Controlled Surface Use restriction would apply to prairie dog towns within the reintroduction area; a negative impact.

Judith Mountains Scenic Area	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C Stipulations would apply to protect visual resources; a minor negative impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Azure Cave	Alternative A (Current) No impact.	Alternative B The area would be available for oil and gas leasing; a positive impact.	Alternative C No impact.	Alternative D No impact.	Alternative E (Preferred) No impact.
Big Bend of the Milk River	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C No Surface Occupancy restrictions would apply to 2,120 acres; a minor negative impact.	Alternative D No Surface Occupancy restrictions would apply to 10,720 acres; a negative impact.	Alternative E (Preferred) No Surface Occupancy restrictions would apply to 1,000 acres; a minor negative impact.

IMPACTS TO HARDROCK MINERALS

Land Acquisition and Disposal	Alternative A (Current) An increase in split surface from mineral estate and the likelihood of surface owner conflicts with mineral development; a minor negative impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Hardrock Mining	Alternative A (Current) Most of the high (99%) and moderate (99%) development potential land would be available for mineral development; a positive impact.	Alternative B All of the high (100%) and most of the moderate (99%) development potential land would be available for mineral development; a positive impact.	Alternative C Most of the high (94%) and moderate (85%) development potential land would be available for mineral development without restrictions; a positive impact. Some of the high (5%) and moderate (15%) development land would have restrictions; a negative impact.	Alternative D Nearly half of the land with hardrock mineral development potential would be closed to mining; a significant negative impact.	Alternative E (Preferred) Most of the high (97%) and moderate (88%) development potential land would be available for mineral development without restrictions; a positive impact. Some of the moderate (12%) development land would have restrictions; a negative impact.
Elk and Bighorn Sheep Habitat Management	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C Management prescriptions would affect mineral exploration and development; a minor negative impact.	Alternative D The proposed withdrawal would close 33% of the high development potential land to mineral exploration and development; a significant negative impact.	Alternative E (Preferred) Same as C.

Prairie Dog and Black- Footed Ferret Management	Alternative A (Current) Bentonite mining activities could be precluded if disturbances could not be mitigated on prairie dog towns selected for reintroduction of the ferret; locally significant negative impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Judith Mountains Scenic Area	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C Management prescriptions could restrict development of mineral resources by open-pit mining; a significant negative impact.	Alternative D The proposed withdrawal would close the area to mineral exploration and development; a significant negative impact.	Alternative E (Preferred) Management prescriptions could restrict the development of one large open-pit mineral operation; a significant negative impact.
Acid Shale- Pine Forest	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C A Plan of Operations would be required for locatable mineral operators; a minor negative impact.	Alternative D The proposed withdrawal would close the area to mineral exploration and development, particularly bentonite resources; a significant negative impact.	Alternative E (Preferred) Same as C.
Square Butte ONA	Alternative A (Current) The area would be closed to mineral exploration and development; a minor negative impact.	Alternative B The area would be available for mineral exploration and development; a minor positive impact.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Collar Gulch	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C A Plan of Operations would be required for locatable mineral operators; a minor negative impact.	Alternative D Same as C.	Alternative E (Preferred) Same as A.
Azure Cave	Alternative A (Current) Mine development in the Pony Gulch area could be restricted; a negative impact.	Alternative B The area would be available for exploration and development; a positive impact.	Alternative C Similar to A, except a Plan of Operations would be required for locatable mineral operators; a negative impact.	Alternative D Same as C.	Alternative E (Preferred) Same as A.
Big Bend of the Milk River	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C A Plan of Operations would be required for locatable mineral operators; a minor negative impact.	Alternative D The proposed withdrawal would close 10,720 acres to mineral exploration and development (bentonite resources); a significant negative impact.	Alternative E (Preferred) The proposed withdrawal would close 2,120 acres to mineral exploration and development (bentonite resources); a minor negative impact.

IMPACTS TO AIR AND WATER QUALITY

Land Acquisition and Disposal	Alternative A (Current) Dust would cause local pollution from BLM land converted to cropland on about 68,000 acres; not a significant impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Oil and Gas Leasing and Development	Alternative A (Current) Air quality would be affected in the immediate area of active wells where venting or flaring occurs; not a significant impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Hardrock Mining	Alternative A (Current) Surface and groundwater degradation is possible during and after mining operations. Significant water quality degradation would not occur under normal operating conditions. As the number of active mine sites increases, the risk of experiencing abnormal operating conditions and water quality degradation also increases.	Alternative B Same as A.	Alternative C Similar to A, except the revocation of withdrawals would increase the risk of water contamination.	Alternative D Similar to A, except the proposed withdrawals would decrease the risk of water contamination.	Alternative E (Preferred) Same as A.
Riparian and Wetland Management of Watersheds	Alternative A (Current) Water quality would improve by increasing stream bank vegetation and reducing erosion on 199 miles of stream.	Alternative B Water quality would improve by increasing stream bank vegetation and reducing erosion on 147 miles of stream.	Alternative C Water quality would improve by increasing stream bank vegetation and reducing erosion on 206 miles of stream.	Alternative D Water quality would improve by increasing stream bank vegetation and reducing erosion on 240 miles of stream.	Alternative E (Preferred) Water quality would improve by increasing stream bank vegetation and reducing erosion on 238 miles of stream.
Collar Gulch	Alternative A (Current) Mining could contaminate surface and groundwater; a negative impact.	Alternative B Same as A.	Alternative C Management prescriptions would address the present stream contamination problem; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Same as A.

IMPACTS TO SOIL AND VEGETATION

Land Acquisition and Disposal	Alternative A (Current) An increase in soil erosion from BLM land converted to cropland on about 68,000 acres; a minor negative impact. No impact on land acquired.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
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Access to BLM Land	Alternative A (Current) Slight risk of erosion from damage to vegetation with new or improved roads and increased use by the public. Slight increased risk for the spread of noxious plants.	Alternative B No impact.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Off-Road Vehicles	Alternative A (Current) Some loss of soil due to increased erosion from ORV use; not a significant impact. High potential for the spread of noxious plants.	Alternative B Similar to A, except the potential for the spread of noxious plants would increase slightly.	Alternative C Similar to A, except destruction of vegetation and creating new trails would be curtailed on 862,709 acres. Potential for the spread of noxious plants would be reduced.	Alternative D Recovery of locally impacted areas and the potential for the spread of noxious plants would be reduced.	Alternative E (Preferred) Similar to A, except destruction of vegetation and creating new trails would be curtailed on 656,296 acres. Potential for the spread of noxious plants would be reduced.
Oil and Gas Leasing and Development	Alternative A (Current) Short-term soil erosion within the immediate site of well pads, roads and pipelines would result in a loss of vegetation; not a significant impact.	Alternative B Similar to A, except potential for increased soil erosion on slopes greater than 30%.	Alternative C Similar to A, except greater protection would be provided for soils on slopes greater than 30% and for floodplain and riparian areas.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Hardrock Mining	Alternative A (Current) Projected exploration and mining could disturb 1,430 acres. Reclamation would restore vegetation in the long-term.	Alternative B Same as A.	Alternative C Projected exploration and mining could disturb 1,330 acres. Reclamation would restore vegetation in the long-term.	Alternative D Projected exploration and mining could disturb 985 acres. Reclamation would restore vegetation in the long-term.	Alternative E (Preferred) Same as C.
Riparian and Wetland Management of Watersheds	Alternative A (Current) Overall, 199 stream miles would improve to proper functioning condition and 299 stream miles would be maintained in proper functioning condition. Vegetation could increase by approximately 82,500 AUMs.	Alternative B Overall, 147 stream miles would improve to proper functioning condition and 221 stream miles would be maintained in proper functioning condition. Vegetation could increase by approximately 58,750 AUMs.	Alternative C Overall, 206 stream miles would improve to proper functioning condition and 308 stream miles would be maintained in proper functioning condition. Vegetation could increase by approximately 95,750 AUMs.	Alternative D Overall, 240 stream miles would improve to proper functioning condition and 360 stream miles would be maintained in proper functioning condition. Vegetation could increase by approximately 103,000 AUMs.	Alternative E (Preferred) Overall, 238 stream miles would improve to proper functioning condition and 357 stream miles would be maintained in proper functioning condition. Vegetation could increase by approximately 92,860 AUMs.
Prairie Dog and Black-footed Ferret Management	Alternative A (Current) Increased vegetation cover and improved ecological condition on 10,013 acres. The 3,308 acres of prairie dog towns managed for ferrets would remain in poor ecological condition.	Alternative B Increased vegetation cover and improved ecological condition on 6,859. The 6,462 acres of prairie dog towns managed for ferrets would remain in poor ecological condition.	Alternative C Increased vegetation cover and improved ecological condition on 1,330. The 7,367 acres of prairie dog towns managed for ferrets and the 4,624 acres managed for shooting would remain in poor ecological condition.	Alternative D Potentially, 18,014 acres could decrease in ecological condition and increased soil erosion. The 12,105 acres of prairie dog towns managed for ferrets would remain in poor ecological condition.	Alternative E (Preferred) The 12,346 acres of prairie dog towns managed for ferrets would remain in poor ecological condition.
Judith Mountains Scenic Area	Alternative A (Current) Exploration and mining could disturb soils and subsoils through road-building, open-pit mining and heap leaching; a negative impact.	Alternative B Same as A.	Alternative C Mitigating surface disturbing activities would maintain natural vegetation; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.

Acid Shale-Pine Forest	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C No impact.	Alternative D No risk of soil or vegetation disturbance.	Alternative E (Preferred) Soil and vegetation could be disturbed from mining; a negative impact.
Collar Gulch	Alternative A (Current) Soil and vegetation could be disturbed from mining and ORV use; a negative impact.	Alternative B Same as A.	Alternative C No impact.	Alternative D No impact.	Alternative E (Preferred) Same as A.
Big Bend of the Milk River	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C No risk of soil or vegetation disturbance.	Alternative D Same as C.	Alternative E (Preferred) Same as C.

IMPACTS TO LIVESTOCK GRAZING MANAGEMENT

Land Acquisition and Disposal	Alternative A (Current) Livestock forage could be reduced by 9,125 AUMs from disposal and acquisition.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Off-Road Vehicles	Alternative A (Current) Forage damage in some of the most popular hunting areas; not a significant impact.	Alternative B Same as A.	Alternative C Limitations would eliminate forage damage in the most popular hunting areas; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Similar to C, except forage damage in the Cottonwood and Frenchman Creek areas; not a significant impact.
Hardrock Mining	Alternative A (Current) Livestock grazing could be affected in the North and South Moccasin, Little Belt and portions of the Judith Mountains; not a significant impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D No impact.	Alternative E (Preferred) Same as A.
Riparian and Wetland Management of Watersheds	Alternative A (Current) Livestock forage could increase by 33,000 AUMs with improved ecological condition and increased watershed cover. Management costs would increase for affected ranchers (\$1.3 million) but these costs could be offset by improved livestock productivity.	Alternative B Livestock forage could increase by 23,500 AUMs with improved ecological condition and increased watershed cover. Management costs would increase for affected ranchers (\$0.8 million) but these costs could be offset by improved livestock productivity.	Alternative C Livestock forage could increase by 38,300 AUMs with improved ecological condition and increased watershed cover. Management costs would increase for affected ranchers (\$2.5 million) but these costs could be offset by improved livestock productivity.	Alternative D Livestock forage would not increase with improved ecological condition and increased watershed cover. Management costs would increase for affected ranchers (\$3.1 million) but these costs could be offset by improved livestock productivity.	Alternative E (Preferred) Livestock forage could increase on a case-by-case basis with improved ecological condition and increased watershed cover. Management costs would increase for affected ranchers (\$2.2 million) but these costs could be offset by improved livestock productivity.
Prairie Dog and Black-footed Ferret Management	Alternative A (Current) In the short-term (5 yrs) livestock forage would decrease by 1,940 AUMs. This would be replaced by land treatments.	Alternative B No impact.	Alternative C In the short-term (5yrs) livestock forage would decrease by 815 AUMs. This would be replaced by land treatments.	Alternative D In the short-term (5yrs) livestock forage would decrease by 1,105 AUMs. This would be replaced by land treatments.	Alternative E (Preferred) No impact.

Acid Shale-Pine Forest	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C No impact.	Alternative D Livestock forage would decrease by 100 AUMs for two permittees.	Alternative E (Preferred) No impact.
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IMPACTS TO WILDLIFE

Land Acquisition and Disposal	Alternative A (Current) Exchanges would result in habitat changes that would positively impact some wildlife while not benefiting others; overall, a positive impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
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Access to BLM Land	Alternative A (Current) Additional access could disturb crucial wildlife habitat; a minor negative impact.	Alternative B Access could disturb crucial wildlife habitat; a minor negative impact.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
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Off-Road Vehicles	Alternative A (Current) ORV use would cause short-term species movement and disturbance during critical periods. This disturbance would be less in areas limited to ORV use (428,770 acres). Overall, a negative impact.	Alternative B ORV use would cause short-term species movement and disturbance during critical periods. This disturbance would be less in areas limited to ORV use (116,640 acres). Overall, a negative impact.	Alternative C ORV use would cause short-term species movement and disturbance during critical periods. This disturbance would be less in areas limited to ORV use (983,915 acres). Overall, a positive impact.	Alternative D ORV use would cause short-term species movement and disturbance during critical periods. This disturbance would be less in areas limited to ORV use (2,785,147 acres). Overall, a positive impact.	Alternative E (Preferred) ORV use would cause short-term species movement and disturbance during critical periods. This disturbance would be less in areas limited to ORV use (813,769 acres). Overall, a positive impact.
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Oil and Gas Leasing and Development	Alternative A (Current) Habitat for raptor nesting would not be fully protected; a negative impact. Overall, this alternative would protect most wildlife resources; a significant positive impact.	Alternative B Standard terms would allow oil and gas activities too close to various wildlife habitat during critical periods. Overall, the standard terms would not protect most wildlife resources; a significant negative impact.	Alternative C Wildlife on winter range would not be fully protected during severe winters. Overall, this alternative would protect most wildlife resources; a significant positive impact.	Alternative D This alternative would protect wildlife resources; a significant positive impact.	Alternative E (Preferred) Wildlife on winter range would not be fully protected during severe winters and the entire grouse nesting habitat would not be completely protected; a negative impact. Overall, this alternative would protect wildlife resources; a significant positive impact.
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Hardrock Mining	Alternative A (Current) Blasting, movement of ore with machinery and general mine activities disrupt the normal activities of wildlife, especially in the summer. Wildlife do adapt to mining activities, but mining may disturb wildlife during critical time periods. Overall, not a significant impact.	Alternative B Similar to A, except the loss of specific withdrawals would have locally significant negative impacts for Azure Cave and Square Butte.	Alternative C Similar to A, except management prescriptions would protect crucial elk and bighorn sheep habitat; a positive impact.	Alternative D Similar to A, except the proposed withdrawals would protect some crucial elk and bighorn sheep habitat; a significant positive impact.	Alternative E (Preferred) Same as C.
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Riparian and Wetland Management Watersheds	Alternative A (Current) Improved wildlife habitat along 498 stream miles and an increase in waterfowl production (149,900 ducks and 23,800 geese); a significant positive impact.	Alternative B Improved wildlife habitat along 368 stream miles and an increase in waterfowl production (97,000 ducks and 17,100 geese); a significant positive impact.	Alternative C Improved wildlife habitat along 556 stream miles and an increase in waterfowl production (150,300 ducks and 27,500 geese); a significant positive impact.	Alternative D Improved wildlife habitat along 599 stream miles and an increase in waterfowl production (161,100 ducks and 25,800 geese); a significant positive impact.	Alternative E (Preferred) Improved wildlife habitat along 595 stream miles and an increase in waterfowl production (161,100 ducks and 25,800 geese); a significant positive impact.
Elk and Bighorn Sheep Habitat Management	Alternative A (Current) This alternative would provide 593,980 acres of elk habitat, 84,711 acres of bighorn sheep habitat and would not protect bighorns from contracting diseases from domestic sheep; overall, a positive impact.	Alternative B This alternative would provide 593,980 acres of elk habitat, 66,788 acres of bighorn sheep habitat and would not protect bighorns from contracting diseases from domestic sheep; overall, a negative impact.	Alternative C This alternative would provide 593,980 acres of elk habitat, 84,771 acres of bighorn sheep habitat and protect bighorns from contracting diseases from domestic sheep; overall, a significant positive impact.	Alternative D This alternative would provide 660,140 acres of elk habitat, 156,930 acres of bighorn sheep habitat and protect bighorns from contracting diseases from domestic sheep; overall, a significant positive impact.	Alternative E (Preferred) Same as C.
Prairie Dog and Black-footed Ferret Management	Alternative A (Current) Eliminating 10,013 acres of prairie dog towns would alter the existing habitat for black-footed ferret reintroduction and associate species; a significant negative impact.	Alternative B Eliminating 6,859 acres of prairie dog towns would alter the existing habitat for black-footed ferret reintroduction and associate species; a significant negative impact.	Alternative C About 7,367 acres of prairie dog towns would be available for ferret reintroduction; a significant negative impact.	Alternative D About 12,105 acres of prairie dog towns would be available for ferret reintroduction; a significant positive impact.	Alternative E (Preferred) About 12,346 acres of prairie dog towns would be available for ferret reintroduction; a significant positive impact.
Judith Mountains Scenic Area	Alternative A (Current) Hardrock mining activities could disturb some wildlife habitat; a minor negative impact.	Alternative B Same as A.	Alternative C No impact.	Alternative D No impact.	Alternative E (Preferred) No impact.
Square Butte ONA	Alternative A (Current) No impact.	Alternative B Hardrock mining activities could disturb some wildlife habitat; a negative impact.	Alternative C Similar to A, except acquiring additional wildlife habitat would be a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Collar Gulch	Alternative A (Current) Mining activity could disturb or destroy the westslope cutthroat population; a significant negative impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D The proposed withdrawal would protect the westslope cutthroat population; a significant positive impact.	Alternative E (Preferred) Same as A.
Azure Cave	Alternative A (Current) Closing the cave to public use and mining would protect the bat during hibernation; a significant positive impact.	Alternative B Unrestricted cave access and mining could disturb the bat hibernation and decrease the population; a significant negative impact.	Alternative C Cave access from May 15 to September 15 could disturb the bat hibernation and decrease the population; a significant negative impact.	Alternative D Cave access from June 15 to August 15 would not disturb the bat hibernation; a significant positive impact.	Alternative E (Preferred) This alternative would not disturb the bat hibernation; a significant positive impact.

IMPACTS TO FORESTRY

Land Acquisition and Disposal	Alternative A (Current) Disposing of about 166,000 acres could create a loss of approximately 1,000 acres of productive forest land. Annual allowable cut could increase as a result of land acquisition.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Off-Road Vehicles	Alternative A (Current) Restricting motorized travel would lessen the fire hazard potential; a positive impact.	Alternative B There would be a greater fire hazard potential; a negative impact.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Hardrock Mining	Alternative A (Current) There could be a loss of some productive timber with expansion of the existing mining operations; not a significant loss.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Judith Mountains Scenic Area	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C Approximately 3,000 acres of productive forest land would be limited to selective cutting; a minor negative impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Collar Gulch	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C Approximately 700 acres of productive forest land would not be available for harvest; a minor negative impact.	Alternative D Approximately 900 acres of productive forest land would not be available for harvest; a minor negative impact.	Alternative E (Preferred) Same as A.

IMPACTS TO CULTURAL RESOURCES

Land Acquisition and Disposal	Alternative A (Current) Inventorying land identified for disposal could increase the amount of cultural information; a positive impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Access to BLM Land	Alternative A (Current) Access would increase site disturbance and the potential for vandalism; a negative impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.

Off-Road Vehicles	Alternative A (Current) Areas open to ORV use result in site disturbance and increase the potential for vandalism; a negative impact.	Alternative B Same as A.	Alternative C Seasonal and yearlong restrictions would reduce site disturbance and the potential for vandalism; a positive impact.	Alternative D Seasonal and yearlong restrictions throughout the planning area would reduce site disturbance and the potential for vandalism; a positive impact.	Alternative E (Preferred) Same as C.
Oil and Gas Leasing and Development	Alternative A (Current) Inventorying lands could increase the amount of cultural information; a positive impact. An unknown number of an estimated 1,286 cultural properties could be disturbed; a negative impact.	Alternative B Similar to A, except an unknown number of an estimated 1,307 cultural properties could be disturbed; a negative impact.	Alternative C Similar to A, except an unknown number of an estimated 1,227 cultural properties could be disturbed; a negative impact.	Alternative D Similar to A, except an unknown number of an estimated 643 cultural properties could be disturbed; a negative impact.	Alternative E (Preferred) Similar to A, except an unknown number of an estimated 1,289 cultural properties could be disturbed; a negative impact.
Hardrock Mining	Alternative A (Current) Mining could disturb some cultural properties; a negative impact. Potential impacts could be mitigated through avoidance or information recovery.	Alternative B Similar to A, except an increased risk for disturbance.	Alternative C Similar to A, except a decreased risk for disturbance.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Elk and Bighorn Sheep Habitat Management	Alternative A (Current) No impact.	Alternative B No impact.	Alternative C Mechanical treatments would require cultural resource inventories which could gather additional resource information; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Prairie Dog and Black-Footed Ferret Management	Alternative A (Current) Mechanical treatments would require cultural resource inventories which could gather additional resource information; a positive impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Judith Mountains Scenic Area	Alternative A (Current) Mining development could potentially disturb some cultural properties; a negative impact. Potential impacts could be mitigated through avoidance or information recovery.	Alternative B Same as A.	Alternative C Similar to A, except a decreased risk for disturbance.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Square Butte ONA	Alternative A (Current) Designation would protect cultural resources; a positive impact.	Alternative B Mining could disturb some cultural properties; a negative impact.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.

Collar Gulch	Alternative A (Current) Mining could disturb some cultural properties; a minor negative impact.	Alternative B Same as A.	Alternative C No impact.	Alternative D No impact.	Alternative E (Preferred) Same as A.
Azure Cave	Alternative A (Current) Drilling or blasting associated with mining in the area could disturb some cultural properties; a slight possibility.	Alternative B Mining could disturb some cultural properties; a negative impact.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Big Bend of the Milk River	Alternative A (Current) Energy development and ORV use result in site disturbance and increase the potential for vandalism; a minor negative impact.	Alternative B Same as A.	Alternative C The risk of site disturbance and vandalism would be reduced; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.

IMPACTS TO RECREATION

Land Acquisition and Disposal	Alternative A (Current) Acquiring land with recreation potential would be a positive impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Access to BLM Land	Alternative A (Current) Not enough legal access to meet the long-term demand for recreation.	Alternative B The quality of recreation would be lessened with no additional access.	Alternative C Additional access could increase recreation use by 2,300 visits; a positive impact.	Alternative D Additional access could increase recreation use by 9,600 visits; a significant positive impact.	Alternative E (Preferred) Same as D.
Off-Road Vehicles	Alternative A (Current) Opportunities for off-road travel would not change.	Alternative B Opportunities for off-road travel would increase while opportunities for hunters who enjoy walk-in hunting would decrease.	Alternative C Opportunities for off-road travel would decrease while opportunities for hunters who enjoy walk-in hunting would increase.	Alternative D No opportunities for off-road travel; a significant negative impact. A significant increase in opportunities for hunters who enjoy walk-in hunting.	Alternative E (Preferred) Opportunities for off-road travel would increase. Opportunities for the handicapped, campers, snowmobilers and hunters would increase.
Oil and Gas Leasing and Development	Alternative A (Current) Quality of recreation would be lessened by the intrusion of oil and gas activities; a temporary negative impact.	Alternative B Hunting opportunities could decrease in some areas with crucial winter range; a locally significant negative impact.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Hardrock Mining	Alternative A (Current) Mining could discourage or curtail dispersed recreation use and displace some use to other areas.	Alternative B Similar to A, except revoking the withdrawals in the Little Rocky Mountains would allow mine development to the edge of the Camp Creek and Buffington recreation sites; a locally significant negative impact.	Alternative C Same as A.	Alternative D Similar to A, except the proposed withdrawal in the Judith Mountains would maintain dispersed recreation opportunities.	Alternative E (Preferred) Positive impacts would result from the continuation of some withdrawals and from management prescriptions on Plans of Operations. Minor negative impacts would result from the revocation of some withdrawals.

Riparian and Wetland Management of Watersheds	Alternative A (Current) The opportunities for wildlife viewing would increase in the planning area. Waterfowl production could provide 58,000 recreation visits for hunting in states south of Montana.	Alternative B Similar to A, except waterfowl production could provide 42,000 recreation visits for hunting in states south of Montana.	Alternative C Similar to A, except waterfowl production could provide 68,000 recreation visits for hunting in states south of Montana.	Alternative D Similar to A, except waterfowl production could provide 74,000 recreation visits for hunting in states south of Montana.	Alternative E (Preferred) Similar to A, except waterfowl production could provide 65,000 recreation visits for hunting in states south of Montana.
Elk and Bighorn Sheep Habitat Management	Alternative A (Current) Expansion of elk and bighorn sheep habitat would increase the opportunities for wildlife viewing and hunting.	Alternative B No change in the opportunities for wildlife viewing and hunting.	Alternative C Same as A.	Alternative D Similar to A, except acquiring elk habitat could increase hunting opportunities in some areas.	Alternative E (Preferred) Same as D.
Prairie Dog and Black-Footed Ferret Management	Alternative A (Current) The opportunity for viewing ferrets and associate species would increase within the reintroduction area; a positive impact. There would be a 100% loss of prairie dog shooting opportunities; a significant negative impact.	Alternative B Similar to A, except there would be a 50% loss of prairie dog shooting opportunities; a significant negative impact.	Alternative C Similar to A, except there would be a 62% loss of prairie dog shooting opportunities; a significant negative impact.	Alternative D Similar to A, except there would be a 86% loss of prairie dog shooting opportunities in the short-term; a significant negative impact. In the long-term there would be an increase in prairie dog shooting opportunities with the expansion of prairie dog towns on BLM land.	Alternative E (Preferred) Similar to A, except prairie dog shooting would continue unless impacts are shown to be detrimental to the ferret.
Judith Mountains Scenic Area	Alternative A (Current) Sightseeing and hiking could be disturbed from noise, traffic and road building associated with mining; a negative impact.	Alternative B Same as A.	Alternative C Some recreation activities would be maintained with protection of the scenic qualities; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) The quality of some recreation activities (sightseeing, hiking and camping) would be maintained and/or enhanced by ORV and ROW restrictions and management prescriptions for Plans of Operation.
Square Butte ONA	Alternative A (Current) No impact.	Alternative B Opening the area to mining could affect recreation quality; a negative impact.	Alternative C Management prescriptions and acquisition of land would provide more opportunities for recreation, 800 visits; a significant positive impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.
Collar Gulch	Alternative A (Current) Potential loss of opportunities for wildlife viewing, sightseeing and hiking from disturbances associated with mining; a negative impact.	Alternative B Same as A.	Alternative C The opportunities for recreation would be maintained; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Same as A.

Azure Cave	Alternative A (Current) No recreation access to the cave; a negative impact.	Alternative B A significant increase in recreation use in the short-term. Over time, attractiveness of the cave could diminish along with recreation use.	Alternative C A significant increase in the opportunities for recreation use, but the overall quality could decrease in the long term.	Alternative D A moderate increase in the opportunity for recreation use.	Alternative E (Preferred) Same as D.
Big Bend of the Milk River	Alternative A (Current) Potential loss of opportunities to interpret cultural resources; a negative impact.	Alternative B Same as A.	Alternative C A moderate increase in recreation use and an opportunity to increase the quality of recreation; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Same as C.

IMPACTS TO VISUAL RESOURCES

Land Acquisition and Disposal	Alternative A (Current) Disposing of about 166,000 acres could result in some visual impairment while acquiring land would maintain visual qualities; overall, a positive impact.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Access to BLM Land	Alternative A (Current) Access could deteriorate visual qualities depending on the frequency, type of use and location; a minor negative impact.	Alternative B No impact.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Off-Road Vehicles	Alternative A (Current) The visual quality would decrease in areas open to ORV use (2,375,440 acres); a negative impact. The visual quality would be maintained in areas limited or closed to ORV use (430,717 acres); a positive impact.	Alternative B The visual quality would decrease in areas open to ORV use (2,687,570 acres); a negative impact. The visual quality would be maintained in areas limited or closed to ORV use (118,587 acres); a positive impact.	Alternative C The visual quality would decrease in areas open to ORV use (1,818,437 acres); a negative impact. The visual quality would be maintained in areas limited or closed to ORV use (987,720 acres); a positive impact.	Alternative D The visual quality would decrease in the intensive ORV use area (40 acres); a minor negative impact. The visual quality would be maintained in areas limited or closed to ORV use (2,806,117 acres); a significant positive impact.	Alternative E (Preferred) The visual quality would decrease in areas open to ORV use (1,990,441 acres); a negative impact. The visual quality would be maintained in areas limited or closed to ORV use (815,716 acres); a positive impact.
Oil and Gas Leasing and Development	Alternative A (Current) Temporary negative impacts from production; the long-term impacts are minor.	Alternative B Same as A.	Alternative C Same as A.	Alternative D Same as A.	Alternative E (Preferred) Same as A.
Hardrock Mining	Alternative A (Current) Some long term or permanent changes in the natural landscape; a significant negative impact.	Alternative B Same as A.	Alternative C Similar to A, except the scenic qualities in the South Moccasin and Judith Mountains would be maintained; a positive impact.	Alternative D Same as C.	Alternative E (Preferred) Similar to A, except the scenic and visual qualities in the Judith Mountains Scenic Area would be maintained; a positive impact.

<u>Riparian and Wetland Management Watersheds</u>	<u>Alternative A (Current)</u> Management prescriptions that improve riparian-wetland areas would enhance the visual qualities; a positive impact.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> Same as A.	<u>Alternative D</u> Same as A.	<u>Alternative E (Preferred)</u> Same as A.
<u>Judith Mountains Scenic Area</u>	<u>Alternative A (Current)</u> Mining could have some long term or permanent changes in the natural landscape; a significant negative impact.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> The scenic qualities would be protected from surface disturbing activities; a significant positive impact.	<u>Alternative D</u> Same as C.	<u>Alternative E (Preferred)</u> The scenic and visual qualities would be maintained; a positive impact.
<u>Square Butte ONA</u>	<u>Alternative A (Current)</u> Management prescriptions would maintain the visual qualities; a positive impact.	<u>Alternative B</u> Mining could have a negative impact on the visual resources.	<u>Alternative C</u> Same as A.	<u>Alternative D</u> Same as A.	<u>Alternative E (Preferred)</u> Same as A.
<u>Collar Gulch</u>	<u>Alternative A (Current)</u> Mining could have some long term or permanent changes in the natural landscape; a significant negative impact.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> Management prescriptions would maintain the visual qualities; a positive impact.	<u>Alternative D</u> Same as C.	<u>Alternative E (Preferred)</u> Same as A.
<u>Azure Cave</u>	<u>Alternative A (Current)</u> No impact.	<u>Alternative B</u> The visual quality could deteriorate from unrestricted access and mining.	<u>Alternative C</u> Management prescriptions would maintain the visual qualities; a positive impact.	<u>Alternative D</u> Same as C.	<u>Alternative E (Preferred)</u> Same as C.

IMPACTS TO ECONOMIC CONDITIONS

<u>Land Acquisition and Disposal</u>	<u>Alternative A (Current)</u> There could be a net increase in annual tax revenues of \$30,000 for the planning area.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> Same as A.	<u>Alternative D</u> Same as A.	<u>Alternative E (Preferred)</u> Same as A.
<u>Access to BLM Land</u>	<u>Alternative A (Current)</u> There could be a long-term negative impact in economic activity.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> In the Judith RA, there could be a 5% increase in recreation-related economic activity (\$160,000).	<u>Alternative D</u> There could be a 13% increase in recreation-related economic activity for the planning area (\$1.1 million).	<u>Alternative E (Preferred)</u> Same as D.
<u>Off-Road Vehicles</u>	<u>Alternative A (Current)</u> There would be no significant impacts.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> Same as A.	<u>Alternative D</u> Same as A.	<u>Alternative E (Preferred)</u> Same as A.
<u>Oil and Gas Leasing and Development</u>	<u>Alternative A (Current)</u> Unless a major discovery occurs, there would be no significant impacts.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> Same as A.	<u>Alternative D</u> There could be a loss of potential future economic activity associated with exploration but no effect to economic activity in the regional economy.	<u>Alternative E (Preferred)</u> Same as A.

Hardrock Mining	<u>Alternative A (Current)</u> There could be 18 mine expansions and/or new mining operations leading to significant impacts, both positive and negative, to economic conditions in the Judith and Phillips RAs.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> Similar to A, except there could be 15 mine expansions and/or new mining operations in the Judith and Phillips RAs.	<u>Alternative D</u> Similar to A, except there could be 11 mine expansions and/or new mining operations in the Judith and Phillips RAs. Conducting validity exams and purchasing valid claims could increase BLM costs.	<u>Alternative E (Preferred)</u> Similar to A, except there could be 17 mine expansions and/or new mining operations in the Judith and Phillips RAs.
Riparian and Wetland Management of Watersheds	<u>Alternative A (Current)</u> Grazing management costs could total \$22.4 million over the life of the plan, resulting in an increase in economic activity of \$30 million.	<u>Alternative B</u> Grazing management costs could total \$14.0 million over the life of the plan, resulting in an increase in economic activity of \$19 million.	<u>Alternative C</u> Grazing management costs could total \$26.2 million over the life of the plan, resulting in an increase in economic activity of \$35 million.	<u>Alternative D</u> Grazing management costs could total \$29.1 million over the life of the plan, resulting in an increase in economic activity of \$39 million.	<u>Alternative E (Preferred)</u> Grazing management costs could total \$23.5 million over the life of the plan, resulting in an increase in economic activity of \$31 million.
Elk and Bighorn Sheep Habitat Management	<u>Alternative A (Current)</u> If elk and bighorn sheep harvest levels increase, there could be a short-term decrease in economic activity attributable to hunting, primarily in the Judith RA.	<u>Alternative B</u> If elk and bighorn sheep harvest levels increase, there could be a short-term increase in economic activity attributable to hunting, primarily in the Judith RA.	<u>Alternative C</u> Same as A.	<u>Alternative D</u> Same as A.	<u>Alternative E (Preferred)</u> Same as A.
Prairie Dog and Black-footed Ferret Management	<u>Alternative A (Current)</u> In the Phillips RA, there could be a 9% decrease in recreation-related economic activity (\$352,000) due to the loss of prairie dog shooting opportunities.	<u>Alternative B</u> There would be no significant impacts.	<u>Alternative C</u> In the Phillips RA, there could be a 6% decrease in recreation-related economic activity (\$228,000) due to the loss of prairie dog shooting opportunities.	<u>Alternative D</u> In the Phillips RA, there would be an 8% decrease in recreation-related economic activity (\$321,000). In the long-term, economic activity would increase as prairie dog towns expand.	<u>Alternative E (Preferred)</u> There would be no significant impacts.
Judith Mountains Scenic Area	<u>Alternative A (Current)</u> Development of mineral resources could cause significant impacts, both positive and negative, to economic conditions.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> There could be a significant loss of potential future economic activity in the Judith RA due to restriction on mineral development.	<u>Alternative D</u> Similar to C, except conducting validity exams and purchasing valid mining claims could significantly increase BLM costs.	<u>Alternative E (Preferred)</u> Similar to A, except one large open-pit mining operation could be restricted.
Acid Shale-Pine Forest	<u>Alternative A (Current)</u> There would be no significant impacts.	<u>Alternative B</u> There would be no significant impacts.	<u>Alternative C</u> There would be no significant impacts.	<u>Alternative D</u> There could be a loss of potential future economic activity associated with bentonite production.	<u>Alternative E (Preferred)</u> There would be no significant impacts.
Square Butte ONA	<u>Alternative A (Current)</u> There could be a loss of potential future economic activity associated with oil and gas development.	<u>Alternative B</u> There could be an increase in economic activity associated with oil and gas development.	<u>Alternative C</u> Same as A.	<u>Alternative D</u> Same as A.	<u>Alternative E (Preferred)</u> Same as A.
Collar Gulch	<u>Alternative A (Current)</u> Development of mineral resources could cause significant impacts, both positive and negative, to economic conditions.	<u>Alternative B</u> Same as A.	<u>Alternative C</u> There could be a significant loss of potential future economic activity due to restrictions on mineral development.	<u>Alternative D</u> Similar to C, except conducting validity exams and purchasing valid mining claims could significantly increase BLM costs.	<u>Alternative E (Preferred)</u> Same as A.

Azure Cave	Alternative A (Current) There could be a significant loss of potential economic activity due to restrictions on mineral development and recreation use of the cave.	Alternative B There could be an increase in economic activity associated with mineral development.	Alternative C There could be a significant loss of potential future economic activity due to restrictions on mineral development.	Alternative D Increases in recreation-related economic activity may not offset losses in potential future economic activity due to restrictions on mineral development.	Alternative E (Preferred) Same as D.
Big Bend of the Milk River	Alternative A (Current) There could be a loss of potential future economic activity associated with recreation.	Alternative B Same as A.	Alternative C In The Phillips RA, there could be a 13% increase in recreation-related economic activity (\$592,000).	Alternative D Similar to C, except there could be a loss of potential future economic activity associated with oil and gas development.	Alternative E (Preferred) Same as C.

IMPACTS TO SOCIAL CONDITIONS

All Issues	Alternative A (Current) Overall, this alternative would enhance the social well-being of affected ranchers, although some negative impacts would also occur. The overall effect to the social well-being of recreationists would be negative. The social well-being of some local businesses would be enhanced and for some it would decrease.	Alternative B Overall, this alternative would enhance the social well-being of affected ranchers, although some negative impacts would also occur. The overall effect to the social well-being of recreationists would be negative. The social well-being of some local businesses would be enhanced and for some it would decrease.	Alternative C Overall, this alternative would have both positive and negative effects on the social well-being of affected ranchers. The overall effect to the social well-being of recreationists would be positive. The social well-being of some local businesses would be enhanced and for some it would decrease.	Alternative D Overall, this alternative would decrease the social well-being of affected ranchers although some positive effects would also occur. The overall effect to the social well-being of recreationists would be positive. The social well-being of some local businesses would be enhanced.	Alternative E (Preferred) Overall, this alternative would have both positive and negative effects on the social well-being of affected ranchers. The overall effect to the social well-being of recreationists would be positive. The social well-being of some local businesses would be enhanced.
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ONE Purpose & Need

INTRODUCTION

This document is the proposed final resource management plan and environmental impact statement (RMP/EIS) for the Judith, Valley and Phillips Resource Areas (RAs) of the Bureau of Land Management (BLM) Lewistown District. It incorporates comments and suggestions made on the draft RMP/EIS during the public review period which began in July, 1991, and ended in December, 1991. It also includes minor corrections and additions identified after the draft was published. The RMP portion of this proposed final consists of the Preferred Alternative (Alternative E) plus the guidance given in the Management Common To All Alternatives section.

This document has been prepared in accordance with Sections 202 and 603 of the Federal Land Policy and Management Act of 1976 (FLPMA); the BLM planning regulations in the Code of Federal Regulations (CFR); and the Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act of 1969 (NEPA).

The information in this document reflects current policy and regulatory information as of February 1, 1992. Policy or regulatory changes after the RMP is finalized would be incorporated through plan maintenance, unless they reflect a change in management direction which would require the RMP be amended or a new RMP prepared.

This RMP/EIS addresses the management of BLM land and resources only, and the minerals administered by the BLM regardless of surface ownership. It does not address land

administered by other federal agencies (except Bureau of Reclamation withdrawals), state agencies or private land.

BLM planning regulations require that resource management plans be "consistent with officially approved or adopted resource related plans of other federal agencies, state, and local governments, and Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies, and programs of federal law, and regulations applicable to public lands..." (43 CFR 1610.3a). BLM will continue to review this plan for consistency with other federal, state and local government or Indian Tribe planning efforts. If necessary, based on a review for consistency, BLM could amend this RMP. Such consistency is an ongoing process and one of the needs which requires BLM to prepare and monitor comprehensive land use plans.

LOCATION OF THE PLANNING AREA

The Judith-Valley-Phillips (JVP) planning area (see Figure 1.1) includes BLM land in Valley, Phillips, Fergus, Petroleum and Judith Basin Counties and that portion of Chouteau County south of the Missouri River.

The planning area encompasses 11,934,041 acres, of which 2,806,157 surface acres (24%) and 3,387,687 acres of mineral estate (28%) are administered by BLM. The majority of landownership is private. Other significant landowners include the Fort Belknap Indian Reservation, the State of Montana and the U.S. Forest Service (FS). Table 1.1 portrays the surface ownership and Table 1.2 the mineral ownership in the planning area.

TABLE 1.1
SURFACE OWNERSHIP BY RESOURCE AREA IN THE PLANNING AREA*

Resource Area	BLM	Private	State	Native American Lands	Other Federal	Total
Judith**	701,581	4,267,547	415,689	0	585,432	5,970,249
Valley***	1,019,886	1,019,109	234,730	0	424,292	2,698,017
Phillips	1,084,690	1,599,365	186,030	114,057	281,633	3,265,775
Total	2,806,157	6,886,021	836,449	114,057	1,291,357	11,934,041

*The planning area does not include the Upper Missouri National Wild and Scenic River.

**The acreage for Chouteau County pertains to that portion of the county south of the Missouri River.

***The Valley RA does not include the portion of Valley County within the Fort Peck Indian Reservation.

Source: BLM, 1990.

FIGURE 1.1
Location of the Judith, Valley, Phillips Resource Management Area

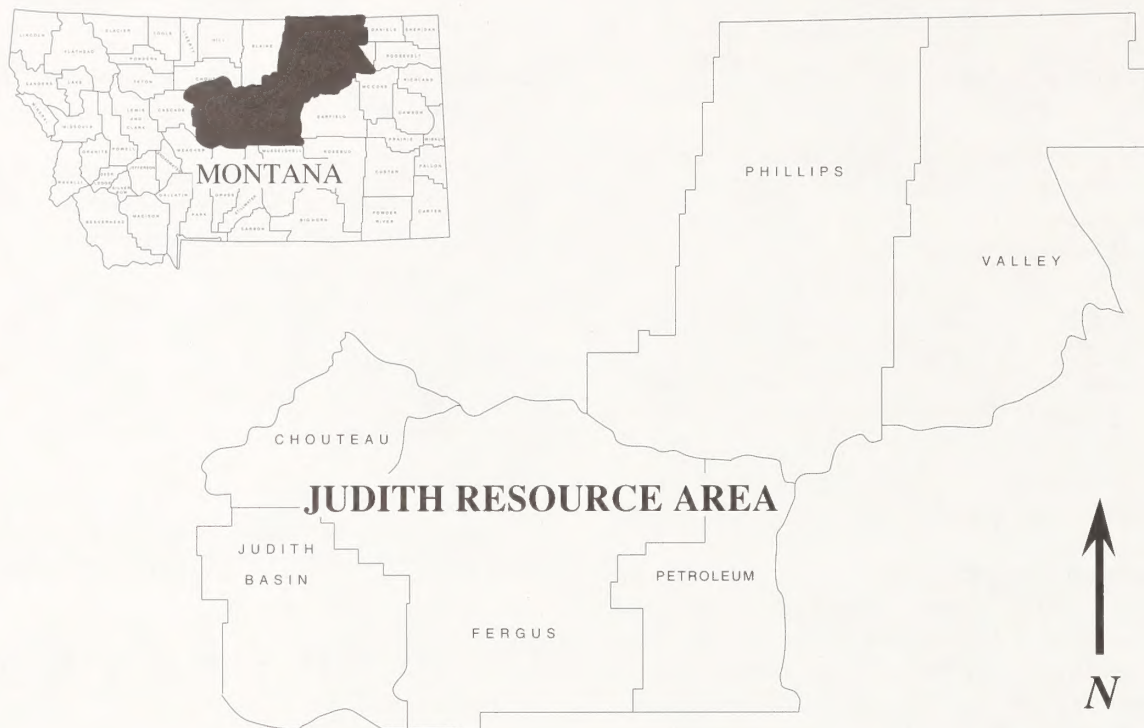


TABLE 1.2
SUBSURFACE MINERAL OWNERSHIP BY
RESOURCE AREA IN THE PLANNING AREA*

Resource Area	BLM	Other	Total
Judith	867,591	5,102,658	5,970,249
Valley	1,134,644	1,563,373	2,698,017
Phillips	1,385,452	1,880,323	3,265,775
Total	3,387,687	8,546,354	11,934,041

*The planning area does not include the Upper Missouri National Wild and Scenic River.

Source: BLM, 1990.

PURPOSE AND NEED

The JVP RMP/EIS provides a comprehensive plan for managing federal resources administered by BLM and is prepared under the authority of Section 202(a) of FLPMA. The RMP/EIS precedes activity planning which is a site-specific, detailed plan that precedes site development. Development, implementation, monitoring and evaluation of activity plans will be an interdisciplinary effort.

This RMP/EIS resolves **nine** resource issues which are fully defined in the next section.

Management guidance for non-issue resources is found in the Management Common To All Alternatives section of Chapter 2. This guidance was developed from existing law and policy or was carried forward from seven management framework plans (MFP), one MFP amendment and **eleven** major environmental documents prepared in the 1970s and 1980s. The guidance given in that section is an integral part of each alternative and will be followed no matter which alternative is selected. This RMP/EIS will supersede all previous planning efforts when the record of decision (ROD) is published.

ISSUES

Nine issues were identified through public participation, resource monitoring and policy mandates during the scoping process. These issues reflect concerns or conflicts which could be partially or totally resolved through this RMP/EIS.

Land Acquisition and Disposal

Some lands in the planning area could provide access to BLM land or contain riparian and wetland values, wildlife habitat, cultural resources or other significant values. There is growing public interest in acquiring such resources or values and holding them in public ownership.

Some BLM lands meet disposal criteria and do not contain significant resource values and could facilitate acquisitions to consolidate land holdings for BLM and other federal agencies and transfer land private use and production.

Access to BLM Land

Legal public access is the public's ability to get to BLM land. From a management standpoint, access can be critical to protecting resource values from misuse or overuse, or in providing a more complete use of a resource. From a public standpoint, access to public land has become an issue of national significance. The need for legal public access to BLM land is increasing, requiring that most public land be made accessible. This RMP/EIS will identify BLM land needing new or additional legal public access.

Off-Road Vehicle Designations

Current BLM off-road vehicle (ORV) designations identify areas as open, limited or closed to ORVs. In recent years, managing ORV use has become entwined with other BLM land uses such as access and recreation in portions of the planning area. Public interest and expectations require that BLM analyze different combinations of these ORV designations as a means of reducing resource damage and user conflicts while still allowing use where appropriate.

Oil and Gas Leasing and Development

BLM anticipates continued oil and gas exploration and development on BLM land and is responsible for oil and gas leasing on BLM-administered subsurface, regardless of surface ownership. BLM will evaluate the types of stipulations needed on oil and gas leases to protect other resources. This evaluation will be the basis for decisions to lease with appropriate stipulations to protect resources, or

not to lease because of sensitive resources which cannot be protected with stipulations.

Hardrock Mining

BLM is expecting increased locatable mineral activity on BLM land, especially in historically active areas such as the Moccasin, Judith and Little Rocky Mountains. BLM is also expecting increased public interest from both proponents and opponents of this type of development in central Montana. BLM guidance requires that mining operations include adequate and responsible measures to prevent unnecessary or undue degradation of federal lands and to provide for reasonable reclamation.

This RMP/EIS will identify areas which should be withdrawn from mining claim location, areas where special management prescriptions would be necessary to protect resource values, and current withdrawals which could be revoked.

Riparian and Wetland Management of Watersheds

Increased public interest about the quality of riparian and wetland areas requires evaluating conditions, trends and management techniques for these resources. BLM's goal is to restore and maintain riparian-wetland areas so that 75% or more are in proper functioning condition by 1997 (BLM Riparian-Wetland Initiative for the 1990's).

Improving or maintaining riparian-wetland areas on BLM land to proper functioning condition and the desired plant community would decrease sedimentation while increasing streambank stability, vegetation production, wildlife habitat, waterfowl production, recreation opportunities and visual qualities and maintaining or improving water quality. These potentials are becoming more important to the general public, private landowners and land managers.

The RMP/EIS will identify areas where riparian and wetland values on BLM land will be maintained or improved and develop criteria to guide implementation.

Elk and Bighorn Sheep Habitat Management

BLM land is capable of supporting expanded elk and bighorn sheep populations. Increased populations could increase hunting opportunities, but could also increase the potential for elk depredation and landowner conflicts on adjacent private land. This issue is complicated because the Montana Department of Fish, Wildlife and Parks (MDFWP) manages wildlife populations while BLM manages wildlife

habitat on BLM land. This RMP/EIS will identify wildlife habitat capability on BLM land and address these public, management and landowner concerns.

Prairie Dog and Black-Footed Ferret Management

BLM is required by the Endangered Species Act of 1973 (ESA), as amended, to carry out programs for the conservation of threatened and endangered species. A block of land of mixed ownership (BLM, Charles M. Russell National Wildlife Refuge (CMR), Montana Department of State Lands (DSL), and private) in the Phillips RA supports prairie dog populations and habitat suitable for the endangered black-footed ferret and is key to the recovery of the black-footed ferret in the United States.

The issue is complicated by concerns about prairie dog expansion; habitat needs for species associated with prairie dog towns; and concerns by grazing permittees, prairie dog shooters, local business operators that their interests are threatened.

BLM, in coordination with U.S. Fish and Wildlife Service (FWS), MDFWP and interested parties, will develop guidance for managing prairie dog habitat and the potential reintroduction of the black-footed ferret in the planning area.

Areas With Special Management Concerns

The RMP/EIS evaluated the eligibility of 187 rivers and streams within the planning area for further study as potential components of the National Wild and Scenic Rivers System. One segment of the Judith River was determined to be both free-flowing and possessing outstandingly remarkable values.

Some BLM lands possess special values and may need management emphasis to protect or preserve those values. These areas have scenic values, rare plant communities, cultural sites, rare geologic features, threatened or endangered species habitat, cave resources or archaeological resources that qualify them for study as potential areas of critical environmental concern (ACEC).

The draft RMP/EIS evaluated 31 ACEC nominations (9 BLM nominations and 22 from the public or other agencies) of which 8 met the relevance and importance criteria and are studied for special management. These eight are the Judith Mountains Scenic Area, the Acid Shale-Pine Forest, the Square Butte Outstanding Natural Area (ONA), Collar Gulch, Azure Cave, Big Bend of the Milk River, Prairie

Dog Complex 1 and Prairie Dog Complex 2. The prairie dog complexes will be studied as one potential ACEC under the Prairie Dog and Black-footed Ferret Management issue throughout the rest of this RMP/EIS. During the public comment period new information was received for the Woody Island Coulee, Joiner Coulee and Mountain Plover ACEC nominations. These three nominations were re-evaluated to determine if they met the relevance and importance criteria. Joiner Coulee and Woody Island Coulee do not meet the relevance and importance criteria. The Mountain Plover ACEC nomination met the criteria and will be addressed through an amendment to the Judith Valley Phillips RMP/EIS. Nominations which meet the criteria as potential ACECs must be reviewed through the Bureau's planning and NEPA processes.

BLM received additional ACEC nominations in November, 1990, and during the public comment period on the draft RMP/EIS. These nominations are the Mixed Grass Prairie in the Valley RA and the Little Rocky Mountains, Old Scraggy Peak and Saddle Butte in the Phillips RA. To maintain the planning schedule and commitment to the public, BLM did not include additional nominations in this RMP/EIS. If these nominations qualify for further consideration, per the ACEC criteria, alternatives for special management will be considered through an amendment to the Judith-Valley-Phillips RMP/EIS.

ISSUES NOT ADDRESSED

Several management concerns were considered, during the initial scoping process, but were concerns which can be resolved with existing management guidance and are not considered issues in the RMP/EIS. These management concerns, which are evaluated in the Management Common To All Alternatives section of Chapter 2, include; rights-of-way (ROW), withdrawal review, vegetation allocation, land treatments, fire management, and coal.

Rights-of-Way

The RMP/EIS identifies areas which should be avoided, windowed for or excluded from ROW; contain concentrations of major facilities; may be suitable for ROW corridors; or may be suitable for communication site location.

Withdrawal Review

This RMP/EIS reviews land classifications and withdrawals to determine if they should be continued, modified or terminated. Guidelines are developed for managing land that may return to BLM administration.

Vegetation Allocation

The RMP/EIS provides guidance for increasing or decreasing vegetation allocations for livestock, wildlife, watershed, recreation and other uses on either a temporary or sustained yield basis. Vegetation allocations will not change, unless monitoring indicates a change is necessary to meet management objectives.

Land Treatments

The RMP/EIS incorporates decisions identifying areas for and restrictions on mechanical, biological and chemical treatments to increase vegetation or change vegetative species composition. Consistent guidance will be applied for the planning area by combining decisions from these previous planning efforts; the Missouri Breaks Grazing EIS (1979), the Prairie Potholes Vegetation Allocation EIS (1981), Vegetation Treatment on BLM Lands EIS (1991), Northwest Area Noxious Weed Control Program EIS (1985), and the Containment/Eradication of Selected Noxious Plants Programmatic Environmental Assessment (EA) (1986).

Fire Management

Management guidance for prescribed fire and wildfire is provided by policy, regulation and the Lewistown District Fire Management Activity Plan (1989). The RMP/EIS identifies fire management objectives for all land protected by BLM. Suppression will be either intensive or conditional, depending upon resource values.

Coal

Coal development is not addressed in the RMP/EIS for the following reasons:

1. There has been no federal coal mining activity in the planning area in over 50 years,
2. There are no existing federal coal leases in the planning area,
3. No expressions of interest for leasing or exchange have been identified in either the Fort Union Coal Region (which includes Valley County) leasing program or the RMP screening process, and
4. Forecasting (NAERC, 1990) beyond the year 2000 indicates a decline in demand for Fort Union region lignite.

Future applications for coal leasing would require an amendment to this RMP and would be guided by the federal coal management regulations (43 CFR 3425).

ISSUES PREVIOUSLY ADDRESSED

Concerns about livestock grazing management, wilderness management, and noxious plant control were all identified during the scoping process. These issues have been addressed in previous planning efforts and are discussed in the Management Common To All Alternatives section of Chapter 2.

PLANNING CRITERIA

Planning criteria guide the RMP/EIS by focusing efforts and providing direction and identifying legal, policy, or regulatory constraints that direct or limit BLM's ability to resolve issues. These criteria may change in response to public comment and coordination with state or local governments and other federal agencies. General criteria were developed to guide this RMP/EIS. Specific criteria for each issue were then developed to guide formulating the alternatives and selecting the Preferred Alternative.

General Criteria

This plan will provide broad resource management direction to implement a variety of activity plans. Specific guidance will be used only where resolution of major management conflicts is needed.

BLM will adhere to the program guidance provided by BLM's Washington Office Supplemental Program Guidance (1986). The State Director's Guidance for RMPs (1983, 1984 and 1989) provides guidance which may be modified through issue development and plan preparation.

Valid management guidance from existing documents will be carried forward in the Management Common To All Alternatives section of Chapter 2. The RMP/EIS and supporting documents incorporate or reference all available valid decisions, analysis and information.

The alternatives have been developed for the planning area and will only analyze those issues requiring management resolution.

The alternatives chosen for study will be feasible for BLM to implement.

The RMP/EIS will apply mitigating measures only to resolve existing or projected management conflicts. Most will be standard operating procedures and will be identified in the Management Common To All Alternatives section of Chapter 2.

Any decision or mitigative measure required by the RMP/EIS will be enforceable and monitored.

To the greatest extent possible the plan will not conflict with tribal, local, county, state and other federal agency plans. BLM will rely on a review process by other agencies and tribal governments for assistance in determining consistency with their plans.

The RMP/EIS will be used as the basic planning document to guide BLM management and budget requests for the planning area. Revisions will be made as necessary. Three individual approved RMPs will be issued; one each for the Judith, Valley and Phillips RAs.

A portion of the Upper Missouri National Wild & Scenic River (UMNWSR) lies within the planning area. Management guidance for the UMNWSR was addressed in the West HiLine RMP/EIS. Decisions for the UMNWSR from the West HiLine RMP/EIS will be incorporated into the individual Judith and Phillips RAs approved RMPs.

The RMP/EIS will contain multiple-use management decisions applicable to land acquired by BLM through withdrawal revocation, exchange or purchase.

All decisions will be consistent with existing laws, regulations and policy.

Baseline social and economic data will be gathered from existing published sources and a study of local economic and social characteristics. Decisions will consider demographic and economic trends related to current and future demands for public resources.

Decisions will consider public perceptions and attitudes of BLM-administered resources.

ISSUE SPECIFIC CRITERIA

Land Acquisition and Disposal

The State Director's Guidance for RMPs will help determine which lands meet the acquisition and disposal criteria. Appendix A shows the land acquisition and disposal criteria for the Judith, Valley and Phillips RAs.

The RMP/EIS will identify specific areas which meet the disposal criteria. Disposal areas will be used to exchange for acquisition areas possessing significant resource values.

The objective of acquisition and disposal is to provide greater resource opportunities for the public by adjusting land ownership and/or improving management efficiency.

Lands which meet the sale criteria in Sec. 203(a) of FLPMA will be available for sale.

BLM land with important resource features will normally be retained unless exchanged for land with equal or greater values.

Decisions involving acquisition and disposal will consider: the effect on employment, personal income, business activity and social well-being; benefits against the cost of the acquisition; attitudes toward specific areas and reasons for acquisition or disposal; and the net loss or gain in county revenues when comparing property taxes with payment-in-lieu of taxes.

Access to BLM Land

The RMP/EIS will identify additional legal public access needs and access limitations based on the State Director's Guidance. Limitations may restrict access to specific users, types, or amounts of use, depending on access objectives and resource capabilities.

Decisions will consider the impacts to employment, income and social well-being resulting from obtaining and/or restricting access.

BLM land identified for long-term retention will be priority areas for access needs.

Legal public access to isolated tracts will not be pursued unless significant public values are present.

Existing public access routes will receive priority consideration over constructing new routes in developing access.

Off-Road Vehicle Designations

Current open, closed or limited ORV designations will be reassessed. All restrictions under a limited designation will be included in the RMP/EIS for specific, high priority areas; precluding the need for an additional activity plan for these areas.

Public interest and demand for ORV use will be considered when determining restrictions (limited or closed) and/or intensive-use areas. Restrictions will be identified to minimize damage to soils, watershed, vegetation or wildlife habitat and its security; destruction of historic and archaeological sites; and exposing the public to hazards.

Designations providing for ORV use (open and limited) will minimize conflicts with other programs and resource plans, other ORV user groups and adjacent landowners.

Authorization to use ORVs in restricted areas (closed or limited) may be provided at the authorized officer's discretion.

Oil and Gas Leasing and Development

The RMP/EIS will evaluate oil and gas resources and identify areas of low, moderate or high mineral development potential. A reasonably foreseeable development model will be developed for the planning area.

The oil and gas stipulations in the BLM Montana State Office Guidelines (IM MT-90-220) will be reviewed and evaluated. Departure from the guidelines may be more or less restrictive, based on local resource conditions and needs.

BLM will identify areas where stipulations would protect the resource, or not lease areas where extremely sensitive features cannot be protected by stipulations.

Oil and gas resources will remain open to leasing in accordance with the Mineral Leasing Act of 1920, as amended, and the 1947 Mineral Leasing Act for Acquired Lands, as amended, except in cases where it is necessary to exclude leasing to protect significant resources. Current exceptions to this policy include national wildlife refuges, wilderness study areas (WSAs), some federal lands withdrawn by the Bureau of Reclamation (BR), and several discretionary closures such as the Little Rocky Mountains, the Judith Game Range and a portion of the Missouri Breaks adjacent to the CMR in south Valley County.

All areas closed to oil or gas leasing will be reviewed to determine if closures are warranted or if stipulations would adequately protect resource values. Current stipulations will be reviewed to ensure they are commensurate with anticipated oil and gas development.

The high, moderate and low mineral development potential and all other public values will be considered to determine closures or application of no surface occupancy restrictions.

BLM management of oil and gas will be consistent with that of other agencies within or adjacent to the planning area, to the greatest extent possible.

Hardrock Mining

All BLM land will remain open to mineral entry unless significant resource impairment would result from hardrock mineral activity after all possible mitigation is applied. Withdrawals in high or moderate mineral development potential land will be reviewed to determine if revoking them could occur without significant resource damage. Emphasis will be placed on reclaiming mined lands and preventing unnecessary or undue degradation of environmental values.

BLM will continue to provide for the development and exploration of hardrock minerals under the 1872 Mining Law, as amended, where resource conflicts are low or can be mitigated or where mining is determined to be the best use of BLM land.

The potential economic benefits (employment and income) of hardrock mining will be compared to other resource values in decisions which may restrict hardrock mining.

The Memorandum of Understanding (MOU) between BLM and the DSL will be used when reviewing, approving and regulating hardrock mineral activities on BLM land. More information about this MOU is given in the Management Common To All Alternatives section of Chapter 2.

Riparian and Wetland Management of Watersheds

The RMP/EIS will identify areas where riparian and wetland values will be maintained or improved and develop criteria to guide implementation. Identification of areas will be allotment specific, where resource information allows.

The primary objectives will be to decrease sedimentation; increase streambank stability, vegetation production, wildlife habitat, waterfowl production, and recreation opportunities; and maintain or improve water quality.

When implementing riparian and wetland objectives, BLM will consider the importance of the intermingled private lands which could be adversely impacted as a result of management changes on BLM land.

BLM recognizes the high potential of riparian and wetland areas and plans to improve the condition and productivity in allotments with these values. BLM would initially accomplish riparian-wetland objectives through livestock grazing methods at current stocking levels. This management includes, but is not limited to, deferring hot season grazing, creating separate riparian pastures, changing the kind and class of livestock; developing off-site water, salting, herding, developing other shade sources or early use pastures of crested wheatgrass. If monitoring indicates this management is not successful, BLM may take the necessary action to meet this objective, such as fencing riparian and wetland areas or reducing livestock numbers and use, and rehabilitating degraded areas. If monitoring indicates the trend in riparian and wetland conditions is improving, the prescribed grazing management should be continued.

Decisions will consider employment, income and social well-being as they relate to wildlife habitat, watershed control, livestock grazing and recreation use.

Elk and Bighorn Sheep Habitat Management

The RMP/EIS will determine which BLM areas are available for elk and bighorn sheep expansion.

Wildlife management strategies will be developed in cooperation with the MDFWP, the FWS for areas adjacent to the CMR Refuge, and adjacent landowners.

The effects on local employment, income and social well-being from elk and bighorn sheep expansion will be considered.

Prairie Dog and Black-Footed Ferret Management

The RMP/EIS will provide direction for prairie dog management, reintroduction of the black-footed ferret, control of prairie dog towns and prairie dog shooting.

BLM will comply with the Section 7 consultation requirements of the ESA.

Interagency biologists will discuss reintroduction of the black-footed ferret and habitat acre proposals with affected livestock permittees. This will be a cooperative effort among the BLM, MDFWP and FWS.

BLM will make the final decision concerning what BLM land will be available for black-footed ferret reintroduction in Phillips County.

The RMP/EIS will consider the effects of prairie dog control on employment, income and social well-being, habitat requirements for the black-footed ferret, and the benefits versus the costs of control.

Areas With Special Management Concerns

The RMP/EIS will evaluate ACEC nominations and designate areas where special management is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; other natural systems or processes; or to protect life and public safety from natural hazards. The Square Butte Outstanding Natural Area, the only existing BLM tract under special management designation in the planning area, will be reviewed for ACEC designation along with other nominated areas.

This RMP/EIS will determine the eligibility and suitability of rivers within the planning area for further study as potential components of the National Wild and Scenic Rivers (WSR) System. The RMP/EIS will release non-eligible and non-suitable rivers from further consideration.

American Indian Religious Freedom Act (AIRFA) concerns will be fully considered when all or some of the justification for designating an area for special management is based on traditional Native American cultural values.

Interim management for ACECs or WSRs may be initiated before issuing of the ROD when necessary to protect significant resource values from degradation until the RMP/EIS process is complete.

The RMP/EIS will identify significant resources, their distribution and conflicts in potential ACECs and eligible rivers for inclusion in the WSR system. Impacts to other resources will be identified when one or more resources take precedence. The decision will strive to balance resource use while ensuring the protection and preservation of significant and relevant resources.

INTRODUCTION

This chapter is presented in two major portions (Management Common To All Alternatives and the Alternative Descriptions) for the reader's convenience.

The guidance in the Management Common To All Alternatives section has been carried forward from existing laws, regulations, policy, supplemental program guidance and previous planning efforts. This guidance, combined with the Preferred Alternative will form the RMP for BLM land within the planning area.

The second portion of the chapter describes the five alternatives designed to resolve the issues discussed in Chapter 1.

All five alternatives comply with the Federal Land Policy and Management Act (FLPMA) requirement that BLM land be managed on a multiple-use and sustained yield basis. All alternatives are subject to compliance with all valid statutes on BLM land. Impacts to all resources are considered through the National Environmental Policy Act (NEPA) for specific actions. Actions which are determined to be inconsistent with the RMP will not be approved without a plan amendment and associated public involvement.

ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Alternatives proposing exclusive production or protection of one resource at the expense of other resources were not considered because this would violate the BLM's legal mandate to manage public land on a multiple-use and sustained yield basis. This eliminated alternatives such as no oil and gas leasing, closing all BLM land to off-road vehicles (ORV)s, or not identifying areas for riparian and wetland management, etc.

MANAGEMENT COMMON TO ALL ALTERNATIVES

The following guidance will continue regardless of which alternative is selected. The resources and resource uses

discussed in this section are common to all five alternatives. Valid decisions from the Belt Management Framework Plan (MFP) (1977), Fergus MFP (1977), Petroleum MFP (1977), Little Rockies MFP (1977), Phillips MFP (1977), UL Bend-Zortman MFP (1977), Valley and Willow Creek MFP (1977), Carpenter Creek-Craig Coulee MFP Amendment (1986), Bitter Creek Wilderness Environmental Impact Statement (EIS) (1989), Missouri Breaks Wilderness EIS (1987), Prairie Potholes Vegetation Allocation EIS (1981), Missouri Breaks Grazing EIS (1979), Northwest Area Noxious Weed Control Program EIS (1987), Containment/Eradication of Selected Noxious Plants Programmatic Environmental Assessment (EA) (1986), Vegetation Treatment on BLM Lands EIS (1991), Willow Creek Interdisciplinary Watershed Activity Plan EA (1987), Wildlife Habitat Improvement Project Programmatic EA (1978), Animal Damage Control Plan (1987), and Small Sales of Forest Products Programmatic EA (1978) have been brought forward into this section. The decisions listed in this section are part of each alternative analyzed and combined with the Preferred Alternative, will form the RMP.

ENERGY MINERAL RESOURCES

Oil and Gas

The Montana State BLM Office issues all federal oil and gas leases, including those involving split estate ownership. Stipulations will be applied by the appropriate resource area office, as prescribed in this document, to protect other resources. Stipulations used for split estate ownership apply only to federal oil and gas approvals, not to any other land use. The oil and gas stipulations are listed by alternative in Appendix B. Each resource area office has map overlays showing specifically where each stipulation would be used and which lands would be closed to leasing.

For leases on lands managed by the Bureau of Reclamation (BR) and the U.S. Forest Service (FS), the surface management agency provides stipulations and conditions for leases in accordance with that agency's planning guidance. Memorandums of Understanding (MOU) with these agencies contain more detail on the leasing process. Leases for Indian lands (Tribal and allotted) are issued by the Bureau of Indian Affairs.

Implementation

All leases are subject to BLM operation regulations (43 CFR 3160), Onshore Orders, Notices to Lessees, and the standard terms in the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

Geophysical exploration is authorized by each representative agency. BLM uses a Notice of Intent process to regulate exploration on BLM lands in the planning area.

Notices of Staking (NOSs), Applications for Permit to Drill (APDs) Deepen or Plugback, and Sundry Notices are reviewed and approved by the appropriate resource area office. For activities on other surface management agency lands, the approval process is conducted under regulations and agreements specific to that agency. At the time of activity approval on BLM and split estate lands, the authorized officer may waive, except or modify stipulations as specified in Appendix B. This could be the case where the resource requiring protection is not present, or when operations can be conducted with acceptable impacts. Additional conditions may be added as site specific conditions of approval to provide for conditions found during field visits to proposed well locations.

Geothermal

BLM will provide opportunities for geothermal exploration and development in areas open to oil and gas leasing.

Implementation

There are no Known Geothermal Resource Areas (KGRA) in the planning area. Should interest be expressed in exploring for or developing geothermal resources, a site specific environmental analysis will be prepared to develop appropriate mitigating measures.

Oil Shale

BLM will provide opportunities for exploration and possible development of the Metalliferous Heath oil shale deposit in southcentral Fergus County. Areas prospectively valuable for oil shale will remain open for issuing prospecting permits and leasing.

Implementation

Prospecting permits will be issued after appropriate environmental review of the exploration proposal. There are currently no regulations for leasing oil shale deposits. A

plan amendment will be required prior to issuing surface mining leases.

Coal

BLM will provide opportunities for coal exploration and production while maintaining nonmineral resource values. The planning area will be available for coal exploration licenses. Coal licenses to mine for domestic use will be available and use per family may not exceed 20 tons annually. Coal leasing by application will remain available for underground and surface mining consideration through the plan amendment process.

Implementation

Prior to approving exploration licenses and licenses to mine, a project specific environmental review document will be prepared to assess impacts and develop mitigation measures.

Prior to issuing coal leases, unsuitability criteria will be applied and a plan amendment prepared.

NONENERGY MINERAL RESOURCES

Hardrock Mining

All federal minerals are available for exploration and development unless withdrawn (see the hardrock mining section of the Preferred Alternative). The surface management program for hardrock mineral exploration and development is administered under federal regulations (43 CFR 3809) and an MOU between the Montana Department of State Lands (DSL) and BLM. Hardrock mineral activities in wilderness study areas (WSA) are administered under the 43 CFR 3802 regulations.

Implementation

Most of the land in the planning area with hardrock mineral activity falls under the public domain (PD), non-WSA category and is subject to the following procedures.

Activities exceeding casual use, but disturbing 5 acres or less and occurring outside special management areas, may proceed 15 days after a Notice is filed with the appropriate office. A Notice is screened for impacts that constitute unnecessary or undue degradation. Processing a Notice is not a federal action and there is no formal environmental analysis.

Projects disturbing more than 5 acres require an approved Plan of Operations before work can begin. Once a Plan of Operations is filed with the BLM, the proposed action is analyzed and those mitigating measures needed to prevent unnecessary or undue degradation are required for approval. For operations covered by the BLM-DSL MOU, the agencies work together to review the mine plan, prepare the environmental analysis and develop appropriate mitigating measures. DSL currently holds the reclamation bond on hardrock mineral activities, with BLM advice and concurrence.

A Plan of Operations must always be filed, regardless of disturbance acreage, for activities which exceed casual use and occur in special management areas such as areas of critical environmental concern (ACEC), wild and scenic rivers and areas closed to ORV use.

A Plan of Operations is required in WSAs for other than casual use level activities. The nonimpairment criteria will determine the required mitigating measures in the Plan of Operations.

Inspection frequency is dependent on a variety of considerations. BLM policy requires, at a minimum, biannual inspections for all operations. Additional inspections are performed as necessary to investigate undesirable events, verify abandonments and follow-up on Notices of Noncompliance. Most inspections are conducted in cooperation with DSL. Appendix C provides additional information on hardrock mineral exploration and development.

Bentonite

BLM will allow exploration and development of bentonite resources while preventing unnecessary or undue degradation of nonmineral resources. Past bentonite production areas will remain open to location under the mining laws or leasing under the leasing laws.

Implementation

Bentonite exploration and development proposals received on public domain land not withdrawn will be processed similar to hardrock mining. Mine plans will be reviewed and appropriate measures taken to protect nonmineral resource values.

Mineral Materials

BLM will issue sales contracts for mineral materials where disposal is deemed to be in the public interest, while providing for reclamation of mined lands and preventing unnecessary or undue impact to nonmineral resources.

All lands not withdrawn, are available for mineral material disposal. Mineral material permits are considered on a case-by-case basis and issued at the discretion of the Area Manager. BLM will continue meeting the demand of local governments for sand and gravel needed for road surfacing and maintenance.

Implementation

Free Use Permits (FUP) are issued to government agencies or subdivisions and to nonprofit organizations. Materials obtained by FUP may not be bartered or sold.

Material sale contracts are valued according to the BLM statewide general appraisal schedule. Sales valued at more than \$5,000 require an individual appraisal prior to contract issuance.

Common use areas or community pits will be designated if the level of localized activity warrants.

Material sales or permits in amounts less than 50,000 cubic yards and disturbing less than five acres may be processed with a Categorical Exclusion Review (CER). Sales or permits exceeding these levels require an environmental assessment. A reclamation plan and operating stipulations to protect nonmineral resource values are included in the permit. The reclamation bond is held by the DSLs, Open Cut Bureau. Government agencies are not bonded for reclamation, but a reclamation plan is incorporated into the permit. Material sales and permits are monitored for production verification and compliance with operating and reclamation requirements.

Solid Minerals (Other Than Coal and Oil Shale)

BLM will allow exploration and development of solid mineral resources (other than coal and oil shale) as authorized under the 1920 and 1947 Mineral Leasing Acts. Resources include, but are not limited to, gypsum, sodium, potassium and phosphate.

Prospecting permits will be available for all land not closed to mineral leasing in conformance with 43 CFR 3500.

Implementation

Prospecting permits will be issued after appropriate environmental review to assess impacts and develop mitigating measures. Discovery of a valuable mineral deposit, within the terms of the prospecting permit, entitles the permittee to a preference right lease.

On land where prospecting or exploration work is unnecessary to determine the existence or workability of a valuable mineral deposit, the minerals may be leased only through competitive sale to the highest qualified bidder. On land where the surface estate is not managed by BLM, consultation and concurrence with the surface managing agency will take place prior to issuing prospecting permits or leases.

GEOLOGIC FEATURES

BLM will provide for access and study of unique geological features. This includes examples of unique structure, stratigraphy, mineral assemblages, historical geology, geomorphology or other geologic exposures that may be educationally valuable or scientifically significant.

Implementation

BLM may develop interpretative sites for geologic features. Areas tentatively identified include Back Country Byways, the Square Butte Outstanding Natural Area (ONA), Red Hill Road/Alaska Bench Road, Maiden Canyon, Judith Peak, Missouri River Breaks and one or more exposures of glacial geology/geomorphology in north Phillips or Valley Counties.

CAVE RESOURCES

BLM will manage significant cave resources containing biota; cultural, historic, and paleontological values; geologic and mineralogic features; hydrology; recreational value; and educational or scientific value. Two caves have been determined to possess significant values, Azure Cave in the Little Rocky Mountains and the Tate-Poetter Cave in the Judith Mountains.

Implementation

Significant cave resources discovered would have a cave management plan prepared. A management plan for significant cave resources will promote cave resources through interpretation, education programs and techniques; protect significant cave biota, cultural resources, paleontology, geologic and mineral features and hydrology; enhance user experience and opportunities; and ensure visitor protection and safety.

PALEONTOLOGY

BLM will protect major paleontological resources of scientific interest. BLM will issue permits only to qualified paleontologists to work on BLM land. Casual invertebrate fossil specimen collectors are not required to obtain a permit.

Implementation

Permits will be issued by the BLM's Montana State Office to qualified paleontologists to work on BLM land. These permits can be issued for excavating and studying significant vertebrate, invertebrate or plant remain fossils.

Potential impacts to paleontological resources will be considered on an individual basis. If paleontological resources are encountered during construction activities, the operator must suspend operations and report the finding to BLM for evaluation and a determination concerning the disposition of such resources.

HAZARDOUS MATERIALS

BLM will prevent the contamination of BLM land with hazardous substances and ensure public health and safety. No authorizations will be made for developing hazardous waste disposal or landfill facilities on BLM land.

Implementation

Land requested for hazardous waste disposal sites, treatment facilities or landfills would be transferred to private ownership, through sale or exchange, after appropriate environmental review. Such action would be coordinated with the Montana Department of Health and Environmental Sciences, Solid and Hazardous Waste Bureau.

All land acquired by BLM, through purchase or exchange, shall be inventoried for hazardous substances and past history of possible contamination in accordance with Secretarial Order 3127. BLM will not take title to any land known to be contaminated with hazardous substances.

Processing land and mineral authorizations shall include review for the proper use, control, storage and disposal of hazardous materials. A contingency plan will be prepared to direct and coordinate a BLM response to any reported incident involving the spill, or release, of potentially hazardous substances on BLM land.

SOILS MANAGEMENT

BLM will maintain and/or improve soil productivity by increasing vegetation cover and reducing erosion.

Implementation

Prior to authorizing any surface disturbing activity (including but not limited to range improvements, mineral development or right-of-way (ROW) location), BLM will evaluate the activity and if necessary apply mitigating measures, deny the authorization, or relocate the activity to a more suitable soil type. Site-specific measures will be developed for soils with high erosion susceptibility, steep slopes, sparse vegetation and shallow soil depth. Activity plans will include mitigation to protect ground cover and streambank stability and to reduce sediment yields from surface disturbing activities. All surface disturbing activities are subject to an on-site evaluation to develop mitigation to reduce erosion and soil compaction and improve soil stability and salinity control. These mitigation measures will also prescribe revegetation programs.

The following mitigating measures will be applied, if necessary, to surface disturbing activities:

1. All proposed range improvements will be designed to limit erosion, saline seeps, salt accumulations (i.e., selenium) and rapid sedimentation.
2. Roads and trails, when part of an approved transportation plan, will be built or upgraded with due regard for environmental considerations. Cut-and-fill slopes should be no steeper than 3:1 where feasible. This will promote quick revegetation and soil stabilization and discourage invasion by weeds. The type of terrain (flat to steep) will be a major factor in applying the 3:1 guideline. The intent is to provide a stable seedbed where practical. After access roads are no longer needed, they will be contoured to a natural appearance and seeded.
3. Topsoil and suitable subsoil will be identified and stockpiled during all soil excavation activities and will be used to rehabilitate the area when the project is completed. Exceptions to this may be granted, based on a site specific evaluation. Disturbed areas will be monitored for noxious plant infestation and control measures will be implemented as needed.

WATER RESOURCE MANAGEMENT

Surface and groundwater quality will be maintained to meet or exceed state and federal water quality standards. BLM

will continue obtaining water rights for all projects on BLM land and complying with Montana water laws.

BLM will improve or maintain vegetative cover on upland and riparian-wetlands to reduce runoff and sedimentation, especially on highly erodible soils. It is anticipated erosion will remain high on the most erosive soils (soil subgroups 3 and 4, see Figure 2.1 and Appendix D) which include very low productivity soils with limited improvement potential and large areas of barren shale outcrop which are only vegetated during ideal climatic conditions.

Implementation

All proposed reservoirs are subject to a soil survey and a hydrologic site evaluation. Engineering staff experience, concerning the soils and hydrology, will be utilized and may substitute for detailed evaluations on routine projects. Reservoirs will be designed with a minimum 15-year life expectancy. All proposed reservoirs will be evaluated to determine the need for off-site water facilities.

All surface disturbing activities are subject to an on-site evaluation to mitigate impacts to water quality and quantity. No activities should alter stream courses. Best Management Practices (BMPs) will be implemented to protect watershed values and maintain or improve water quality (see Appendix E). Other measures to protect stream courses will be evaluated for environmental impacts prior to project approval.

Small amounts of oil field produced water, which do not meet water quality standards, will be disposed of in accordance with On-shore Order #7 and/or Environmental Protection Agency (EPA) guidelines.

AIR QUALITY MANAGEMENT

BLM will comply with national and state air quality standards. Existing air quality will be protected by the use of BMPs (Appendix E) and best available control technology (BACT).

Implementation

Federal and state regulations require air quality monitoring for activities which could degrade existing air quality. Detailed monitoring and mitigation plans are written when an activity plan is prepared. These measures generally require actions during specific wind conditions to either disperse smoke or prevent chemical spray drift.

Prescribed fires require approval from the Montana Department of Health and Environmental Science, Air

Figure 2.1 Physiographic Provinces and Soil Subgroups.

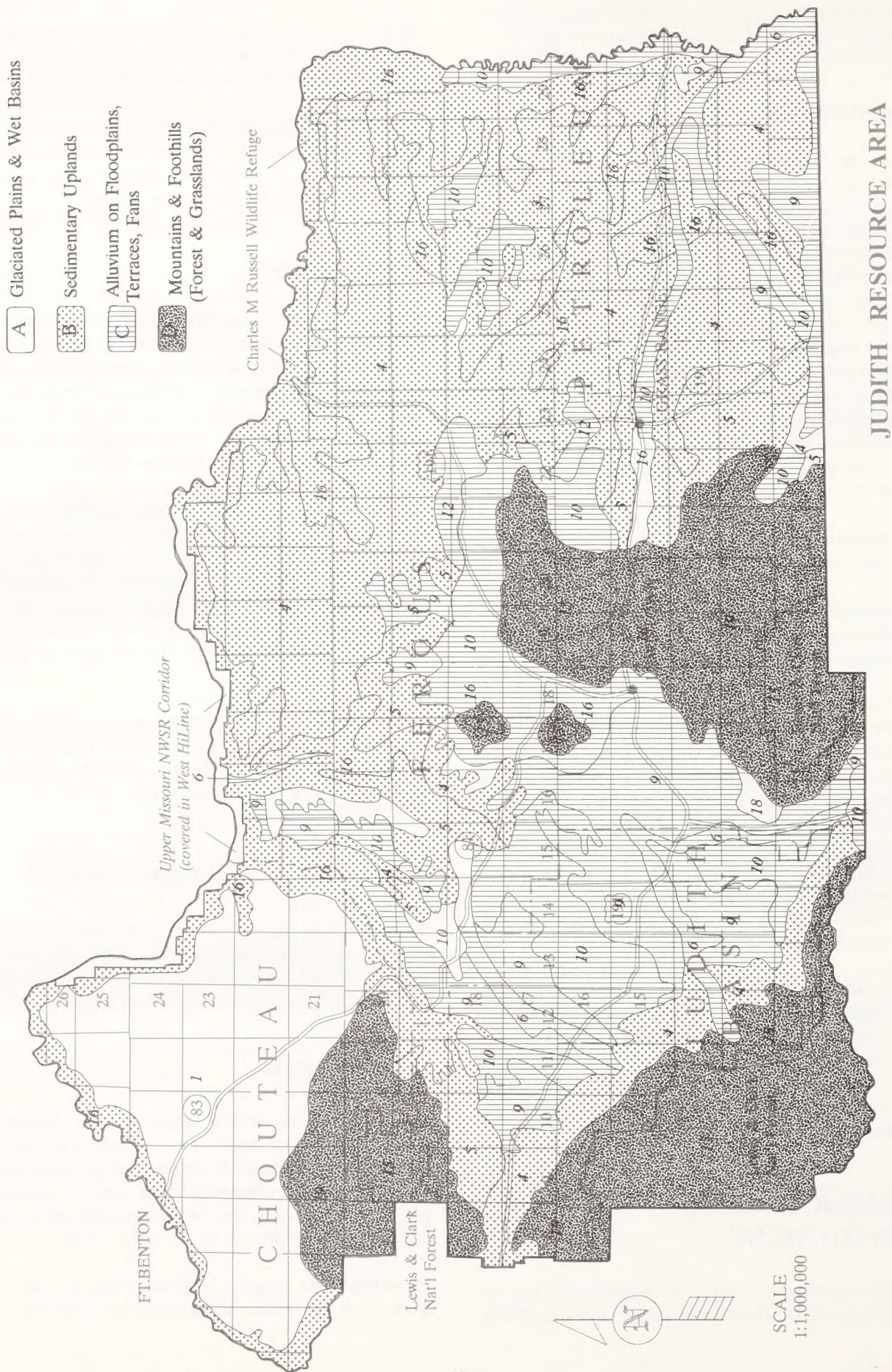
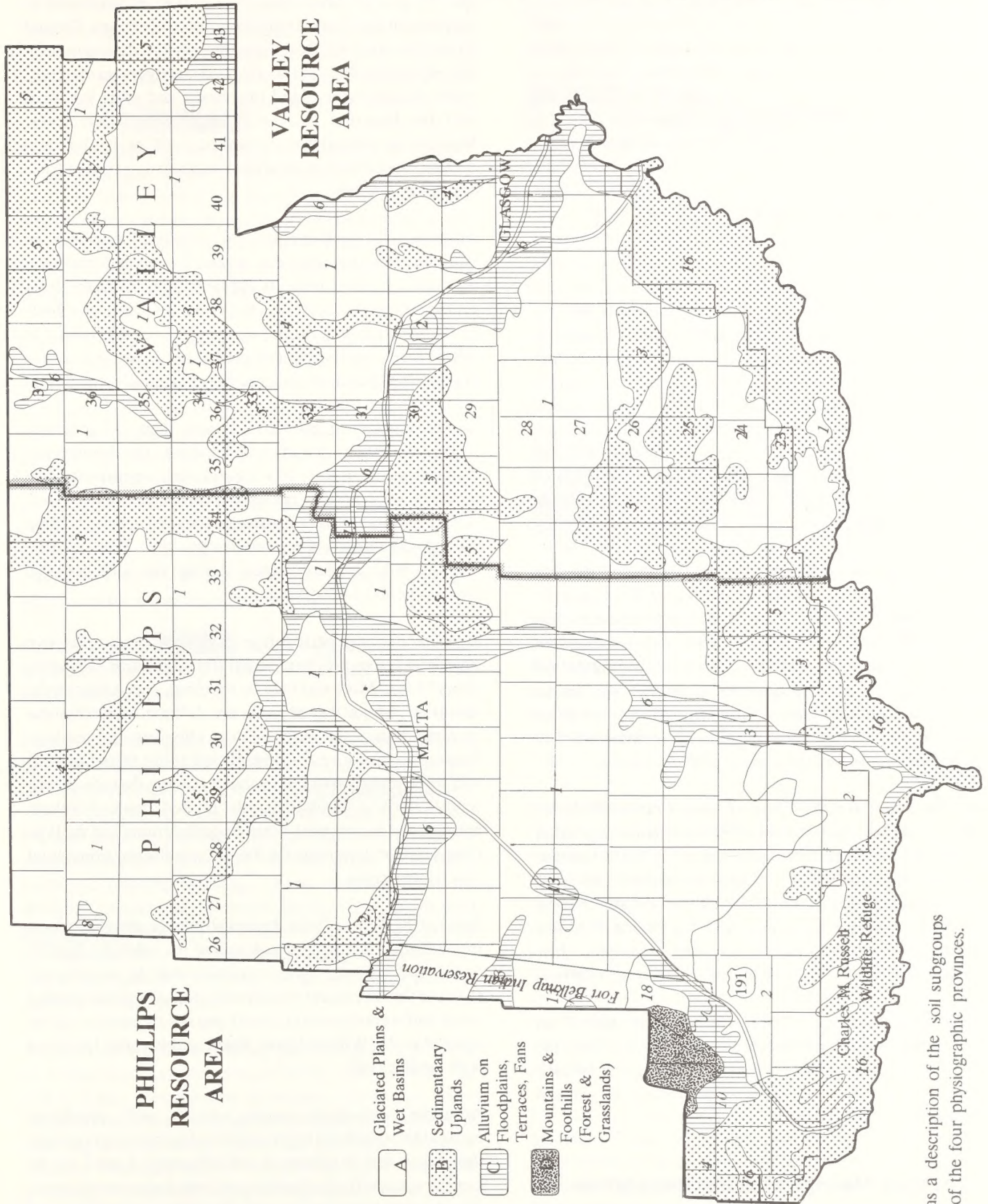


Figure 2.1 Physiographic Provinces and Soil Subgroups. (continued)



Note: Appendix K has a description of the soil subgroups found in each of the four physiographic provinces.

Quality Bureau. All such plans are forwarded to the appropriate airshed zone coordinator.

Venting or flaring hydrocarbon gas associated with hydrogen sulfide (sour gas) requires approval under the provisions of the Notice to Lessee (NTL) 4-A and State Air Quality regulations. The BLM along with the Montana State Air Quality Bureau monitors this activity for compliance.

VEGETATION MANAGEMENT

BLM'S overall vegetation management objective is to improve or maintain the ecological status of the BLM land to achieve a plant community of good or excellent ecological condition on 80% of the BLM land within 15 years of implementation of activity plans. Good to excellent ecological status is defined by the Soil Conservation Service's (SCS) Montana Grazing Guides for each ecological site, and equates to late seral and potential natural community (PNC) terms currently used by the BLM. Management of riparian-wetland areas is discussed under the Alternative Descriptions for the Riparian and Wetland Management of Watersheds issue.

BLM rangelands are managed according to multiple-use objectives, based on ecological site potential for specific uses. These objectives must be economically and biologically feasible. In some cases, the desired plant community needed to maintain certain wildlife habitat for specific species (prairie dogs for example) will be an ecological condition class less than good (late seral) or excellent. Good to excellent ecological condition satisfies the habitat requirements for most wildlife species.

The Missouri Breaks Grazing and Prairie Potholes Vegetation EISs identified objectives to increase vegetation production for watershed protection, wildlife habitat, livestock forage and wildlife forage as a product of improving of the rangeland ecosystem. The Missouri Breaks Grazing EIS projected an 8% increase and the Prairie Potholes Vegetation EIS a 15% increase in vegetation production as primary objectives. These objectives will remain in effect.

Grass seed or hay may be sold from BLM land if an interdisciplinary environmental analysis finds it to be in the best interests of the public. Hay or seed cutting may be used as a land treatment to improve production of crested wheatgrass.

Watershed Management Implementation

About 60% of the vegetation will continue being allocated to watershed protection and wildlife forage and cover (this equates to 712,570 animal unit months (AUMs)). The BLM will continue to cooperate with the Montana Department of Fish, Wildlife and Parks (MDFWP) to determine wildlife habitat needs.

As allotment management plans (AMP) are developed, site specific ground cover objectives will be incorporated to supplement and support range condition objectives. Ground cover objectives will be consistent with the site potential by soil series or ecological site. Grazing management methods, water developments, land treatments and other practices will be designed to meet ground cover objectives. Monitoring and evaluation methods will be applied and management practices modified as needed to ensure these objectives are met.

Allotments in predominately fair ecological condition or with fair condition areas due to poor livestock distribution will have grazing methods applied to periodically defer grazing during critical growth periods. Grazing methods and land treatments (keyed to specific soil subgroups) in selected areas will be implemented, as necessary, to improve vegetation production, cover and to reduce soil compaction.

Surface disturbing activities greater than 1/4-acre will require the initiating party to rehabilitate the disturbance. Native species in the site's natural plant community will normally be seeded to revegetate all surface disturbance. Some reclamation may involve introduced species if these species are necessary to stabilize the site. Revegetation species will be determined during the site specific environmental analysis phase.

A minimum rest period from livestock grazing of two growing seasons will be required after any major vegetative disturbance. More rest may be required, depending on the situation. Major disturbances are defined as mechanical manipulation of the range such as chiseling and seeding. Requirements for rest following fire (wild or prescribed) will depend on a variety of factors including the type of fuel, time of burn, accessibility of the burned area to livestock and climatic factors post-burn. Specific timing and the type of rest will be determined at the site specific environmental assessment phase.

Some of the Willow Creek Basin watershed control structures in the Valley RA will be maintained for wildlife, riparian and access values. Other structures will be abandoned. Contour furrowing and grazing methods to improve ground cover and control erosion, runoff and sedimentation will be applied in the Willow Creek Basin and in other locations with similar soils.

Alternate water developments, springs, wells, pipelines, etc. will be considered before constructing reservoirs greater than 5 acre-feet in volume in soil subgroups 3 and 4 due to erosive soils and high siltation rates which shorten reservoir life. An interdisciplinary team will review the placement of water sources on soil subgroups 3 and 4 in areas that historically have not been grazed. Changes in grazing season or animal unit month (AUM) reductions will be considered as alternatives to implementing grazing methods that would require water developments on these soils.

Wildlife and Fisheries Implementation

Specific objectives will be incorporated into resource activity plans, if needed, to meet wildlife habitat goals. Grazing methods, land treatments and other improvements will be designed and monitored to accomplish objectives.

BLM will improve the quality and quantity of summer forage by improving the reproduction and availability of palatable forbs for deer and antelope; maintaining and/or improving deer and antelope winter range (especially woody species) and fawning cover; and maintaining existing sagebrush stands at a canopy cover of 15 to 50% with an effective height over 12 inches.

BLM will improve the quality and quantity of nesting, brood rearing and winter habitat for upland game birds. BLM will provide residual grass and forb cover for upland bird and waterfowl nesting. Objectives for residual cover will be developed in AMPs and measured in terms of percent of residual (utilization levels) or visual observation ratings. BLM will manage for succulent vegetation, including a variety of forbs and maintain big and silver sage on sage grouse wintering and nesting areas with a canopy coverage (line intercept) of 15 to 50% and an effective height of 12 inches. BLM will improve or maintain woody vegetation for sharp-tailed grouse cover.

Livestock use levels will be monitored to ensure adequate wildlife cover remains to meet winter and early spring wildlife cover needs.

Prior to constructing any rangeland improvements, a wildlife biologist will provide site-specific recommendations and develop needed mitigating measures. Construction of new water developments within 1/2-mile of a sharp-tailed grouse lek will only be allowed after careful consideration of potential impacts on woody vegetation due to possible increased livestock grazing. Land treatments will be designed to maintain sagebrush levels within the desired canopy cover range (15-50%) and to increase the amounts of succulent forbs. Controlled burning in conifer and sagebrush types will be done on an individual basis to improve wildlife habitat.

As reservoirs are planned during the development of AMPs or habitat management plans (HMP), fisheries potential will be a key consideration in location and design. New fisheries reservoirs will normally be fenced and a livestock watering tank provided below the reservoir. Existing fisheries reservoirs will be fenced to exclude livestock, if necessary, to improve emergent vegetation, shade and/or improve the recreational experience.

Grazing Management Implementation

BLM manages grazing on the public rangelands by statutory authority, i.e. the Taylor Grazing Act, the Federal Land

Policy and Management Act and the Public Rangelands Improvement Act. Under the statutes, BLM is required to develop regulations to manage public land resources on a multiple-use and sustained yield basis. Management of grazing on BLM land within the planning area will be in accordance with the grazing administration regulations found in 43 CFR, Parts 4100. The purpose of the grazing regulations is to manage the livestock grazing program as an integral part of the overall multiple-use of the public lands.

About 40% of the vegetation (452,380 AUMs) will continue being allocated to livestock; 139,236 AUMs in the Valley RA, 179,911 AUMs in the Phillips RA and 133,233 AUMs in the Judith RA. Short-term livestock grazing reductions will be implemented as necessary during drought or other emergencies.

All vegetation increases resulting from livestock grazing management and/or land treatments within an allotment will be allocated to watershed, until the soil and vegetation resource is stabilized at a satisfactory condition as determined by an interdisciplinary team. In the Willow Creek watershed of the Valley Resource Area (RA) all increased vegetation will be allocated to watershed protection because of highly erodible soils (primarily soil subgroups 3 and 4).

Developed recreation sites will be excluded from livestock grazing, except where grazing is needed to maintain the desired plant community. For example, sheep or goat grazing may be needed to control leafy spurge. Grazing by horses and other livestock used by recreationists in developed recreation sites will be managed through specific activity plans.

Forage allocation decisions will be monitored on a continuing basis. Adjustments to livestock forage allocations will be based on ongoing monitoring. Monitoring intensity will be based on allotment category. Allotments with potential overstocking will be most intensively monitored. Utilization data from key areas which receive substantial use will be used to adjust stocking on these allotments. In addition to utilization data, actual use, climate and trend data will be used to support changes in livestock forage allocations. The monitoring guidelines can be found in the Valley, Judith and Phillips Monitoring Plans available at the respective offices.

Most unallocated parcels will remain available for livestock grazing. These are mainly isolated small tracts. An environmental assessment will be prepared for areas not previously grazed by livestock. Four larger areas (Square Butte, part of the Judith Mountains, the Little Rocky Mountains and Whitewater Lake area) will remain closed to livestock grazing. The Cree Crossing allotment, adjacent to the Milk River, will be closed to livestock grazing for recreation values. The Montana Gulch and Dry Gulch allotments will be authorized under a grazing permit following the procedure in 43 CFR 4130.1-2.

Grazing allocations on newly acquired land will be based on management needs and objectives for the acquisition. The allocation may range from zero to full capacity and will be monitored after completion of the activity plan to adjust grazing as needed, to meet objectives.

BLM will supervise grazing use to assure compliance with the terms and conditions of grazing permits and leases. Any violations of permits will be pursued vigorously in accordance with the grazing trespass regulations.

Livestock grazing will continue to be managed through development and monitoring of AMPs or similar grazing plans and supervision of grazing use. AMPs will be developed and maintained to achieve multiple-use objectives in accordance with the Missouri Breaks Grazing and Prairie Potholes Vegetation Allocation EISs as modified by this EIS. Methods and guidelines from these EISs will be followed to maintain or improve ecological condition, enhance vegetation production, maintain and enhance wildlife habitat, protect watersheds, reduce bare ground to the target soil vegetation cover by soil subgroups and to minimize livestock/recreation conflicts. AMPs will implement some form of grazing method (i.e., rest rotation, deferred rotation, seasonal or other methods). Livestock grazing management methods will be implemented prior to land treatments.

All allotments have been assigned to a management category depending on the resources and problems contained in the allotment. The three categories Improve (I), Maintain (M) and Custodial (C) reflect resource conditions and economic considerations for each allotment. The terms maintain, improve, and custodial relate to resource objectives for the allotment, i.e. whether conditions need to be improved, maintained or if custodial management is appropriate because of relatively limited resources and resource problems. BLM's allotment categorization system will continue to determine priorities for implementing AMPs, spending range improvement funds and monitoring. Allotments will be subject to recategorization based on changes in resource conditions as determined through monitoring and priority changes made through this EIS.

Monitoring data and analysis will be used to determine if grazing management is achieving land use or activity plan objectives. Existing AMPs will be updated as dictated by monitoring results or changes in the livestock operation.

Grazing permittees have an opportunity to apply each year for changes in grazing use within their preference level. These changes may include adjustments in season of use, livestock numbers or class of livestock. Where major changes in livestock use are proposed, these applications will be considered through an interdisciplinary environmental analysis.

Temporary decreases in livestock forage allocations will be used in the event of a temporary loss of forage such as in

severe drought, fire or insect or weed infestations. Temporary increases in livestock forage allocations will be made on a nonrenewable basis, where such increases are within the available carrying capacity and are consistent with multiple use objectives as determined by an interdisciplinary review.

Range improvements (primarily reservoirs, fences and land treatments) will be built to support AMPs. Fences will be designed to allow easy passage of wildlife. In the Prairie Potholes area, one water source per section is the guideline for water development.

Reductions in livestock grazing previously made in the Missouri Breaks due to steep slopes and other suitability criteria will remain in effect.

LAND TREATMENTS

BLM will use land treatments to meet watershed, grazing management and wildlife objectives. Land treatments will only be applied where grazing management alone will not accomplish the desired result. Clubmoss-bluegrama vegetation, dense clay and claypan ecological sites, dense big sagebrush stands, and dense pine-juniper stands are the soil/vegetation types considered for treatments. These will increase infiltration of water into the soil, improve ecological condition, improve wildlife habitat and increase vegetation production.

Land treatments (chisel plowing, planting of lure crops, scalping, disking, contour furrowing, seeding and burning) may be considered in all AMPs. Chisel plowing will continue as the primary clubmoss/claypan treatment method. Burning will be done on a limited basis to improve wildlife and livestock forage in dense pine-juniper stands throughout the Missouri Breaks and to improve vegetation productivity on other upland sites including sagebrush. Chemical control of sagebrush will not be considered because of the potential loss of valuable winter forage, damage to valuable forbs and concerns about the effects of herbicides on wildlife.

Implementation

The criteria and guidelines in the Chisel Plowing Policy for the State of Montana (IMMT-88-125, 1988) will be followed when implementing land treatments.

Land treatments will be planned, developed and implemented to ensure that potential negative impacts are identified and mitigated. The MDFWP will be consulted in accordance with the MOU between BLM and MDFWP. Watershed topography, soil types, infiltration and soil loss potential will also be considered and mitigated in vegetation manipulation projects.

Increased production resulting from land treatments will be allocated toward accomplishing multiple-use objectives. When all objectives of the AMP are accomplished, additional forage resulting from land treatments will normally be allocated 50% to watershed, 25% to livestock and 25% to wildlife. If Ducks Unlimited or other private wildlife funding is used to do the treatment, the additional allocation will be to wildlife. Conversely, where there is substantial contribution by the livestock permittee and there are no conflicts with wildlife objectives, up to 50% of the additional vegetation may be allocated to livestock.

Existing crested wheatgrass seedings will be managed where feasible as spring pastures to defer native rangeland grazing, except where sagebrush invasion has resulted in important wildlife habitat. Crested wheatgrass seedings may be maintained for maximum livestock forage production with up to 70% of the production allocated to livestock when soils are stabilized to a satisfactory condition. Mechanical treatments and fertilization are management practices which renovate old crested wheatgrass stands to benefit associated native rangeland.

Crested wheatgrass seedings may be used to consolidate existing scattered stands of crested wheatgrass into a manageable unit. New seedings of crested wheatgrass or other species may be used where no other option is available to meet the resource objectives. Reseeding old crested wheatgrass stands to native species is not normally feasible due to the difficulty of eliminating the crested wheatgrass and the cost of native seeds.

NOXIOUS PLANTS

BLM will control, eradicate or contain noxious plants to maintain native rangelands. The primary tool will be the use of Integrated Pest Management (IPM). IPM uses chemical, biological, mechanical and other strategies to most effectively combat noxious plants while minimizing impacts to the environment.

Control efforts will be focused primarily on leafy spurge and knapweeds. The containment/eradication of noxious plants will proceed as analyzed in the Programmatic Environmental Assessment on Containment/Eradication of Selected Noxious Plants in the BLM Lewistown District (1986), the Northwest Area Noxious Weed Control Program EIS (1987), and the Vegetation Treatment on BLM Lands EIS (1991).

Implementation

BLM will encourage and pursue educational efforts in cooperation with the Montana Cooperative Extension Service to increase awareness of the noxious plant problem.

BLM will cooperate with state and county governments to detect and prevent the spread of noxious plants. BLM will control, eradicate and/or contain noxious weed infestations on BLM land by cooperative agreements with county weed boards. If weed problems occur in an intermingled ownership pattern, BLM will initiate control measures in conjunction with the other landowners.

Biological control and sheep or goat grazing will continue to be emphasized, especially where using of chemicals would be environmentally or economically impractical. Herbicides will be used on small infestations and on the perimeter of large infestations. BLM will continue cooperating with the Agricultural Research Service, Animal and Plant Health Inspection Service (APHIS), in biological weed control efforts.

ANIMAL DAMAGE CONTROL

BLM may allow animal damage control on BLM land in the planning area. The methods used include trapping, denning, snaring, M-44s, ground shooting, and aerial gunning. Animal damage control will be conducted on BLM land by the U.S. Department of Agriculture, APHIS. Prairie dog control is discussed under the Prairie Dog and Black-footed Ferret Management issue.

Implementation

Control activity procedures, responsibilities, stipulations and restrictions are described in the Lewistown District Office, Animal Damage Control Plan, 1987, as updated.

WILDLIFE AND FISHERIES MANAGEMENT

BLM will maintain and enhance suitable habitat for all wildlife species. The emphasis for habitat maintenance and development will be on present and potential habitat for sensitive, threatened and/or endangered species, nesting waterfowl, crucial wildlife winter ranges, non-game habitat and fisheries. This guidance is consistent with BLM's Montana Fish and Wildlife 2000: A Plan for the Future.

General forage allocations and habitat decisions for wildlife can be found in the Vegetation Management section of this chapter. Population management is the responsibility of MDFWP; BLM has made general habitat management decisions to support the populations identified by the MDFWP and these decisions are identified below. All existing MOUs between BLM and other agencies that pertain to wildlife management will be carried forward in this document.

Sensitive, Threatened and/or Endangered Species Habitat Implementation

BLM will consult with the U.S. Fish and Wildlife Service (FWS) when any action "may affect" a threatened or endangered (T&E) species or its habitat.

No action will be initiated on BLM land which will jeopardize any candidate or federally listed threatened and endangered plant or animal. Impacts to state designated species of special interest will be evaluated and applicable mitigation developed prior to any action on BLM land.

BLM will cooperate with the FWS to fully recover threatened and endangered species. The federally listed T&E species within the planning area are the bald eagle, peregrine falcon, black-footed ferret and piping plover (see Appendix F). Federal candidate species are the ferruginous hawk, mountain plover, and long-billed curlew. BLM will cooperate with MDFWP to manage the State Species of Special Concern (see Table 2.1).

TABLE 2.1 MONTANA SPECIES OF SPECIAL CONCERN	
Mammals	Birds
Northern Bog Lemming	Northern Goshawk
Dwarf Shrew	Ferruginous Hawk
Preble's Shrew	Merlin
Merriam Shrew	Cooper's Hawk
Big-eared Bat	Prairie Falcon
Hoary Marmot	Golden Eagle
White-tailed Prairie Dog	Mountain Plover
Canada Lynx	Upland Sandpiper
Wolverine	Long-billed Curlew
Least Weasel	Northern Pygmy Owl
Long-legged Bat	Northern Saw-whet Owl
Meadow Jumping Mouse	Long-eared Owl
Masked Shrew	Burrowing Owl
	Three-toed Woodpecker
	Northern Saw-whet Owl
	Vesper Sparrow
Amphibians	Burrowing Owl
Wood Frog	Pileated Woodpecker
Dakota Toad	Olive-sided Flycatcher
Tailed Frog	Western Bluebird
	Clay-colored Sparrow
Fish	Brewer's Sparrow
Westslope Cutthroat Trout	Bobolink
Blue Sucker	Dickcissel
Finescale Dace	Eastern Bluebird
Shortnose Gar	Field Sparrow
Cheek Chub	
Reptiles	
Plains Hognose Snake	
Western Spiny Softshell	
Milk Snake	
Common Snapping Turtle	

The Montana Bald Eagle Working Group did not identify any high potential nesting habitat within the planning area; however, historical nesting sites do occur. Areas that contain potential nesting habitat need to be evaluated to determine if high potential habitat could be developed with habitat modifications. Food sources for nesting eagles would also be evaluated. If habitat modification provides high potential nesting habitat, BLM will manage the area for bald eagles.

Potential peregrine nesting cliffs are scattered throughout the Missouri River Breaks and mountain ranges in the planning area. These areas should be considered future reintroduction sites.

Many of the wetlands on BLM land may contain habitat for piping plover and/or least tern. Piping plovers have been found on Bowdoin National Wildlife Refuge and Nelson and Fort Peck Reservoirs in the planning area. However, smaller alkali wetlands elsewhere (North Dakota and southern Saskatchewan) provide habitat for the plover. No piping plovers have been found on BLM land in the planning area. Least terns have been found on islands at Fort Peck Reservoir and on islands down stream from the reservoir. The wetlands within the planning area need to be inventoried for both species. If piping plovers are found on BLM land, their habitat should be protected. Disturbing activities would not be allowed within 1/4-mile of any nesting piping plover from May 15 to July 30.

An inventory is needed to determine ferruginous and Swainson's hawks populations in the planning area. Various techniques are needed to plant new trees and/or nesting structures to secure adequate nesting areas for the Swainson's hawk. These nesting structures need to be protected from livestock by fencing or placing large rocks around the nesting structure.

Mountain plover habitat is enhanced by black-tailed prairie dogs. Most of the mountain plover observations in the planning area are associated with prairie dog towns. Classic mountain plover habitat elsewhere is associated with short grass prairies. These areas need to be identified and surveyed to determine the extent of mountain plover habitat.

The long-billed curlew is very common throughout the planning area. The curlew is found mainly in the grassland habitats. An inventory is needed to assess the curlew habitat and its habitat needs.

Wildlife Habitat Implementation

Areas that can support woody vegetation establishment and respond to rest, need to be identified, maintained and managed. Browse is important in maintaining big game and upland bird populations.

BLM will minimize or prevent road and trail development on crucial big game and upland bird habitat areas.

Woody vegetation is important to sharp-tail grouse, particularly in the fall and winter. Woody vegetation will be improved or maintained and careful consideration given to the location of all water improvements within 1-1/2 miles of sharp-tailed grouse leks.

Powerline construction will follow the recommendations related to Prevention of Raptor Electrocution on Power Lines (A. Oldendorft, A. Miller and R. Lehman, 1981).

BLM may provide artificial nesting platforms for osprey, golden eagles and other raptors. BLM may develop nesting areas in high cliff faces for peregrine falcons.

Great blue heron and cormorant rookeries will be protected from roads, campsite developments, timber cutting and other intrusions. Surface disturbing activities will not be allowed within 1,000 feet of rookeries from the start of nesting to the fledgling of young birds.

The North American Waterfowl Management Plan was developed in 1988, because of declining waterfowl production in the United States and Canada. It showed that certain species of ducks, especially the mallard, northern pintail, redhead and canvasback are in serious trouble. North America has been divided into various regions. Two of these regions, the Prairie Potholes and Northern Great Plains, are within the planning area. It also suggested joint ventures, which are coordinated efforts with federal and state agencies and private landowners to produce waterfowl. Within the Prairie Potholes Joint Venture, the Montana Waterfowl Working Group has identified Beaver Creek Project. This project is in the Phillips RA.

To implement the North American Waterfowl Management Plan BLM will emphasize the mallard, northern pintail, redhead and canvasback during habitat development. Priority would be given to the Beaver Creek project in the Prairie Potholes Joint Venture; then the remainder of the Prairie Pothole Joint Venture and finally to the Northern Great Plains region. Wildlife habitat management of BLM land within the regions would fall into these categories; reservoir construction, reservoir reconstruction, island construction, reservoir enhancement, grazing system implementation, enhancement and/or modification and wetland acquisition.

Potholes in association with the existing stockwater reservoirs, provide additional waterfowl production. The potholes would be developed into complexes with a large (larger than 10 surface acres) permanent waterbody, brood ponds (permanent or ephemeral, about 3-surface acres in size) and pairing ponds (mostly ephemeral, about 1-surface acre in size).

Managing riparian and wetland areas is discussed further under the Riparian and Wetland Management of Watersheds issue.

Fish Habitat Implementation

Consistent with the 10-year Cooperative Fish Management Plan between the BLM and MDFWP, the MDFWP will be requested to stock the reservoirs shown in Table 2.2.

**TABLE 2.2
RESERVOIRS IDENTIFIED FOR FISHERIES
ON BLM LAND**

Judith RA	Valley RA	Phillips RA
Buffalo Wallow	Atlas	Bell Ridge
Hopalong	Shoot	Lark
Holland	Snow	Dogtown
Upper Dry Fork	Hose	Sentinel
Lower Dry Fork	Gay	Pale Face
Jakes	Langen	White Face
Crooked Creek	Knudson (Helen)	Sagebrush
Dry Blood	Lunch	Taint
South Fork Dry Blood	Big	Current
Yellow Water	Valley	Wangler
Drag		PR-110
Payola		Wapiti
Cotton Dam		PR-20
Fritzner		King
Mauland		PR-18
Box Elder		PR-16
		PR-109A
		Douchette
		PR-114
		PR-22
		PR-54
		Compton
		Flake

Source: BLM, 1990

Other reservoirs may be identified as fisheries reservoirs with priority consideration given to reservoirs near population centers and major access routes. BLM will attempt to develop self-sustaining game fish populations while recognizing that some reservoirs would be maintained as put-and-take fisheries. BLM will also improve existing habitat by modifying existing high potential reservoirs, considering fisheries potential during the design phase of new reservoirs, and attempting to locate reservoirs in a cluster with a variety of self-sustaining game fish.

RECREATION

BLM will maintain and/or enhance the recreational quality of BLM land and resources to ensure enjoyable recreational experiences. BLM's Recreation 2000 guidance and the Tri-State Recreation plan incorporate the following provisions:

1. **Managing** visitor services including a permit system, interpretive programs, visitor contact, and efforts to improve BLM's image with public land users;
2. Maintaining all facilities where the public comes in contact with BLM roads, trails, signs, recreation sites and buildings;
3. Partnerships among other agencies, organizations, and private citizens; and
4. Budget/marketing techniques which showcase BLM's land management.

Recreation emphasis will be **to develop and maintain** opportunities for dispersed recreational activities such as hunting, scenic and wildlife viewing and driving for pleasure. Methods to achieve these opportunities include emphasizing public access and the Watchable Wildlife and Back Country Byways programs. BLM will support dispersed recreation for the public to support local, regional and national needs. BLM will not construct undeveloped or developed recreation sites based strictly on local use, unless these sites can be realized through partnerships with other government entities, local service organizations, etc.

The operation and development of recreation facilities supported solely by BLM will be in nationally and regionally recognized areas and in areas where BLM has previously made substantial investments. BLM will encourage and support reasonable recreational initiatives from local and regional groups through partnerships, agreements, challenge cost sharing and volunteer efforts.

BLM will increase coordination with the Montana tourism industry to market BLM recreational opportunities, particularly with the Charlie Russell and Missouri River Tourism Regions for the State of Montana.

BLM will use signs, maps and brochures to identify recreation resources for the public.

Recreation sites for fishing will be developed by BLM when there is an opportunity to share funding with other agencies such as MDFWP.

BLM will not allocate permits or specific use areas for outfitters and guides. All BLM land is available at the discretion of the area manager as long as permittees maintain

a special use permit and meet BLM regulation requirements. Outfitters and other recreation users are required to use weed-free feed on BLM land for their livestock as a part of the district's integrated weed management program.

A pack in/pack out garbage policy will be implemented throughout the planning area, except for developed recreation sites where an entrance fee is assessed. BLM will provide sanitation and maintenance services for all developed recreation sites. Partnerships will be sought to help maintain recreation sites.

Judith RA Implementation

The Judith RA contains six recreation management areas (RMA), the Judith with 643,634 acres, Judith Mountains with 22,000 acres, Square Butte with 1,947 acres (discussed in the alternative descriptions of this chapter), Snowy Mountains with 20,000 acres, Judith River with 9,000 acres, and the Nez Perce National Historic Trail with 5,000 acres.

Judith RMA

This is an extensive recreation management area which provides dispersed and unstructured recreational activities.

The Judith RMA contains **16** undeveloped recreation sites associated with these fishing reservoirs; Buffalo Wallow, Hopalong, Holland, Upper Dry Fork, Lower Dry Fork, Jakes, Crooked Creek, Dry Blood, South Fork Dry Blood, Yellow Water, Drag, Payola, Fritzner, Mauland, Box Elder and Cotton Dam. These sites will receive minimal maintenance. Any additional facilities such as tables, fire pits and toilets will be coordinated through partnerships and volunteers.

Recreation access maps, brochures and signs at key public access points and at undeveloped sites will be available for the public.

BLM land in this RMA has high rockhounding potential and BLM will allow and encourage rockhounding opportunities.

One route (Missouri Breaks) has been designated for the Back Country Byways program.

BLM will work with the Fort Peck Interagency Council, the MDFWP, the Corp of Engineers and Petroleum County Commissioners on maintaining the Crooked Creek Road. The degree of involvement will be determined by **budget and staff availability.**

Judith Mountains RMA

This special RMA provides picnicking, scenic viewing, hiking, driving for pleasure and caving opportunities.

Additional cave inventories will be needed. Interim protective measures will be needed for the Tate-Poetter Cave as well as other significant caves in the planning area.

An activity plan may be prepared to develop partnerships and volunteer agreements for managing the existing sites in the Judith Mountain RMA. The majority of the public use is on a local or regional level. A lack of funding will result in closing or not implementing most of these sites, unless some type of volunteer assistance is obtained. This includes six undeveloped recreation sites Collar Gulch, Red Mountain, Big Grassy Peak, Judith Peak Scenic Overlook, Limekiln Canyon and Upper Armells Creek.

Developing trail systems and undeveloped recreation sites in the Collar Gulch area should be coordinated with Fergus County's Camp Maiden site.

The scenic overlook project on Judith Peak will be undertaken, if a partnership can be established with local groups. This site could be made available through a recreation and public purposes (R&PP) lease to a qualified group.

A mountain bike trail could be constructed from the Red Mountain recreation site to the Collar Peak trailhead, a distance of 5 miles, provided a partnership with another entity can be obtained.

A rock collecting area for double terminated, smokey quartz crystals (locally known as Judith Peak Diamonds) may be identified along the Judith Peak Road.

The Judith Peak/Maiden Canyon Road may be nominated for the Back Country Byways system.

Snowy Mountains RMA

This special RMA provides fishing, hunting, sightseeing, hiking and picnicking opportunities.

BLM will work with the Lewis and Clark National Forest to provide an access route across BLM land from the Red Hill Road to Half Moon Pass Trail (FS #493).

Lack of funding will close the South Fork Flatwillow recreation site unless partnership is attained.

BLM will cooperate with the state, FS and private landowners for the continued development and use of the 4-mile cross-country ski trail in the Green/Dry Pole Canyon area along the Crystal Lake Road. There is a need to formulate a

partnership with the State of Montana, FS and private landowners.

Judith River RMA

This special RMA provides float boating, hunting, fishing, scenic and wildlife viewing and camping opportunities.

The Judith River was evaluated for Wild and Scenic River status and a 27.1-mile segment in this RMA has been studied and found eligible but not suitable for wild and scenic river status. Additional information on the evaluation process is discussed in the Wild and Scenic River Section of Management Common To All Alternatives.

Visual resource values (VRM Class II) will be protected along the Judith River. Public access will be pursued for put-in and take-out points from the Denton highway bridge to the Anderson Bridge.

Nez Perce National Historic Trail RMA

A portion of this statewide special recreation management area is located within the planning area and BLM will manage the recreation activities and opportunities associated with this portion of this historical feature.

This National Historic Trail System crosses the Judith RMA and provides several opportunities for interpretation. This key segment begins near Winifred and enters the Upper Missouri National Wild and Scenic River (UMNWSR) Corridor near Cow Island. It also parallels portions of the proposed Missouri Breaks Back Country Byway.

Scenic and cultural values will be protected on BLM land along this historic trail. An activity plan will be developed to detail management activities along the trail.

Valley RA Implementation

The Valley RA contains two recreation management areas, Valley with 366,486 acres and South Valley with 653,400 acres.

Valley RMA

This unit is an extensive recreation management area where a limited commitment of resources will provide dispersed and unstructured recreational activities.

The Valley RMA contains six undeveloped recreation sites; five fishing reservoirs plus a day use area along the Milk

River west of Glasgow (Faraasen Park). The fishing reservoirs are Atlas, Big, Gay, Hose and Langen.

Potential management actions for this RMA include providing recreation access maps, brochures and signs at access points and the undeveloped sites. Partnerships between BLM and volunteer groups may provide additional facilities such as picnic tables, fire pits and toilets for the undeveloped recreation sites.

Faraasen Park development plans include a parking lot, an interpretive nature trail and improved wildlife habitat and riparian areas. Continued development and maintenance will be realized through partnerships with other government entities and local service organizations, etc. The Bitter Creek area has been selected for a wildlife viewing zone under the Watchable Wildlife program. The North Valley access route from Opheim to Hinsdale will be considered for Back Country Byway status.

South Valley RMA

This unit is a special recreation management area which provides opportunities for hunting, scenic and wildlife viewing and driving for pleasure.

The South Valley RMA includes five undeveloped recreation sites associated with fishing; Helen, Lunch, Shoot, Valley and Snow. The Lunch, Shoot and Valley sites have development potential as new fishing reservoirs through a partnership agreement. The facilities at these five sites could include picnic tables, fire pits, shelter roofs and pit toilets.

The TC Access Road and Willow Creek/Dry Fork routes will be considered for Back Country Byway status.

Phillips RA Implementation

The Phillips RA contains three RMAs; Phillips with 740,690 acres, South Phillips with 318,200 acres and Little Rockies with 25,800 acres.

Phillips RMA

This RMA is an extensive recreation management area which provides dispersed and unstructured recreational activities.

This RMA contains nine undeveloped recreation sites, of which seven are associated with fishing reservoirs. These sites plus the remaining two sites, Guston Coulee and Cottonwood Coulee, will receive minimal maintenance.

Recreational activities associated with the latter two would be camping, hunting, fishing and picnicking. Additional facilities such as picnic tables, fire pits, toilets or sun shelters could be pursued through the use of partnerships and volunteers.

The seven fishing reservoirs are Douchette, Compton, Flake, PR-22, PR-110, PR-54 and PR-114.

Walk in hunting areas may be developed to alleviate resource damage or in response to public demand for that type of access.

Fishing access and boat ramps will be developed on BLM land along the Milk River where partnership agreements can be made.

These routes will be considered for Back Country Byway status; Frenchman Creek, Cottonwood Creek/Black Coulee, and a North Phillips tour route through potholes and wetlands complexes (specific location to be determined).

South Phillips RMA

This special RMA provides hunting, fishing, scenic and wildlife viewing and pleasure driving opportunities.

There are 17 undeveloped recreation sites within this RMA of which 16 will be available for fishing and watchable wildlife activities. These 16 recreation sites are Bell Ridge, Lark, Dogtown, Current, Sentinel, Pale Face, White Face, Sagebrush, Taint, Wrangler, PR-20, Wapiti, King, PR-18, PR-16 and PR-109A.

The other undeveloped recreation site, White Rocks Coulee, will be used for camping and picnicking.

These 20 sites will receive minimal maintenance. Additional facilities may include a picnic table, fire pit, toilet and sun shelter through cooperative partnerships and volunteers.

The Dry Fork/Willow Creek and Bull Creek/Power Plant Ferry routes will be nominated to the Back Country Byways program.

Scenic overlooks will be considered from which the Burnt Lodge, Antelope Creek and Cow Creek WSAs can be seen. Any development would be arranged through partnerships and volunteers.

Efforts will be made to acquire the Coe Homestead and Kid Curry Hideout for interpretive programs.

Wildlife viewing areas will be considered for waterfowl, mountain plover, burrowing owls, sage grouse and sharptails and may consist of photo blinds, hiking trails and the Watchable Wildlife program.

Little Rockies RMA

This special RMA provides camping, picnicking, hiking and wildlife viewing opportunities.

BLM will maintain the Camp Creek Campground, Montana Gulch Campground and Buffington recreation sites.

Additional cave inventories in the Little Rocky Mountains will determine which caves meet significance criteria. Interim management prescriptions will be needed to protect resources in any significant caves. Azure Cave is located within this RMA and is discussed as one of the potential ACECs in the alternative descriptions in this chapter.

WILDERNESS MANAGEMENT

A final suitability study/EIS has been completed that recommended wilderness designation for Burnt Lodge, Antelope Creek and a portion of the Cow Creek WSAs. The WSAs that were studied, but not determined suitable for wilderness designation were Bitter Creek, Woodhawk, Dog Creek South, and Square Butte. More information on these WSAs can be found in the Square Butte Wilderness Study Report (1980), Final Bitter Creek Wilderness EIS (1989) and the Final Missouri Breaks Wilderness Suitability Study/EIS (1987).

BLM will maintain the wilderness values in seven WSAs (Burnt Lodge, Antelope Creek, Cow Creek, Bitter Creek, Woodhawk, Dog Creek South and Square Butte). The Secretary of Interior made recommendations to the President in October 1991. Table 2.3 shows the Secretary of Interior's wilderness recommendations for these seven WSAs (1991). The President will send a recommendation by October 1993, to Congress who in turn can designate any of the WSAs or portions thereof as wilderness, deny designation or continue study of the areas.

TABLE 2.3 WILDERNESS RECOMMENDATIONS		
Wilderness Study Area	Acres Recommended for Wilderness	Acres Recommended for Non-Wilderness
Burnt Lodge	13,730	
Antelope Creek	9,600	2,750
Cow Creek	21,590	12,460
Bitter Creek		59,660
Woodhawk		8,100
Dog Creek South		5,150
Square Butte		1,947

Source: BLM, 1991

Implementation

WSAs will continue to be managed under BLM Interim Management Policy and Guidelines for Lands Under Wilderness Review until they are acted upon by Congress.

Acquired areas studied for wilderness will be managed to prevent unnecessary or undue degradation of the land, and when it does not conflict with valid and existing rights, they will be managed to meet the non-impairment standard as well.

BLM will prepare a Wilderness Management Plan for any areas designated as wilderness by Congress. WSAs not designated as wilderness by Congress will subsequently be managed in accordance with guidance for adjacent BLM land unless otherwise specified.

VISUAL RESOURCE MANAGEMENT

BLM will manage activities to comply with the Visual Resource Management (VRM) policy. BLM land within the planning area has been assigned a VRM class based on a process that considers scenic quality, sensitivity to changes in the landscape and distance zone (see Map 1, in the back of this document). The planning area has four classes, numbered I to IV. The lower the class number the more sensitive and scenic the area. Each class has a management objective which prescribes the level of acceptable change in the landscape. The visual classes are defined as follows:

Class I Objective - The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II Objective - The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

Class III Objective - The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objective - The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements.

Class I areas include the Square Butte ONA and scattered BLM lands associated with the UMNWSR. Management of the UMNWSR is discussed in the West HiLine RMP/EIS and management of the visual resources for Square Butte is discussed in the alternative descriptions of this chapter.

Class II areas are landscapes that provide contrast to the uniformity of the surrounding plains. In the planning area, this includes several isolated mountain ranges, major stream valleys and Breaks area along some deeply incised valleys. With increased interest in tourism, sightseeing activities, back country byways, scenic corridors and scenic overlooks, BLM places management emphasis on maintaining scenic quality within the overall multiple-use management direction.

One area, the Judith Mountains Scenic Area, has been nominated as an ACEC because of its relatively visually undisturbed character and the large block of BLM land it contains. The ACEC is discussed in detail in the description of alternatives in this chapter and in Chapter 3. This particular area highlights the tourism backdrop for the largest central Montana community, Lewistown, and provides for sightseeing within the scenic corridor of several major highways leading into the Lewistown community. Other planning area mountain ranges and river valleys possessing Class II visual resource ratings do not have the undisturbed vistas or do not have sufficient blocks of BLM land ownership to warrant special management attention. Several of the Breaks areas are in wilderness study status and a portion of those Class II areas have been recommended for wilderness designation. Such designation would contain management prescriptions for maintaining the visual character of those areas.

Class III and IV areas primarily include the open prairie, grasslands and some foothills in the planning area. Management of these areas allows alteration of the visual landscape, but works to minimize visual disruption of the form and lines created by the plains and foothills landscape.

Implementation

Surface developments will be designed or mitigated to compliment and harmonize with the natural features and the VRM class objectives. The visual contrast rating will be used as a guide for all major projects proposed on BLM

lands that fall within VRM Classes I, II and III areas. The VRM class objectives may not always be met due to non-discretionary actions or exceptions which may occur after evaluation and at the discretion of the authorized officer.

CULTURAL RESOURCES

The cultural resource management program has two components; compliance with existing laws/regulations and the management of cultural properties on BLM land.

Two cultural resource management plans will be prepared, one for Valley and Phillips RA and one for the Judith RA. The purpose is to assign cultural resources to particular uses and to assess and to establish thresholds for determining cultural property significance. The cultural resource management plans will establish the management prescriptions best suited for fulfilling management goals and objectives.

BLM decisions, including implementing a cultural resource management plan, are subject to historic preservation laws and regulations (primarily the National Historic Preservation Act (NHPA) and 36 CFR Part 800). BLM will ensure that all proposed actions, initiated or authorized by BLM, avoid damage to federal and non-federal cultural resources. BLM will determine, based on inventory and evaluation data, whether the proposed action will impact important cultural resources and if necessary take steps to avoid or mitigate possible impacts, consistent with the uses attributable to the cultural resource.

BLM will consult with Native American tribes when its actions have the potential to affect areas of concern to the practitioners of traditional religions. In the planning area, that consultation will require contact with the Fort Belknap, Fort Peck and Rocky Boy Reservations and possibly other tribes. The activities of concern are those which might cause degradation to the visual or aesthetic nature of an area, or cause the loss of plant species or other resources important to Native Americans. BLM is required to consult with traditional religious practitioners of policies and procedures to determine if changes are needed to ensure that such rights and freedoms are not abridged by agency practices.

The Big Bend of the Milk River, in the Phillips RA, has archaeological resources of particularly high site density and unusual significance. A more detailed discussion is given under the Big Bend of Milk River ACEC nomination.

Implementation

The primary management objectives are to properly manage the cultural resources under BLM jurisdiction through a

systematic program of identification and evaluation, and to reduce the level of conflict between cultural resources and other land and resource uses. All cultural resources within the planning area are segregated into management objectives. These objectives include managing for information potential, managing for public values and managing for conservation.

Cultural resources which contain significant information on the prehistory and history of the planning area will be managed for their information potential. These are cultural properties that consist of artifacts and features on the surface and/or are buried that have the potential to yield important information.

Cultural resources that possess sociocultural, educational and recreational attributes will be managed for their public values. These include cultural resources associated with traditional Native American cultural values and prehistoric or historic cultural properties which exhibit interpretive and/or recreational potential. Managing cultural properties used by Native Americans will focus on avoiding uses incompatible with traditional values.

Special or unique cultural resources will be managed for their public values and conservation. These include cultural properties that contain sensitive prehistoric religious features such as medicine wheels or burials; cultural properties that are of a nature that would not permit current archaeological technology to adequately investigate the property; and cultural properties which are rare in the planning area.

Allocation of cultural resources to specific uses will be completed during Cultural Resource Management Planning. There are six use categories for cultural resources: Scientific Use, Conservation for Future Use, Management Use, Sociocultural Use, Public Use and Discharged Use.

The Scientific Use category applies to any cultural property determined to be suitable for consideration as the subject of scientific or historical study, including study that would result in its physical alteration. Inclusion in this category signifies that the property need not be conserved in the face of an appropriate research or data recovery (mitigation) proposal.

The Conservation for Future Use category is reserved for any unusual cultural resource which, because of scarcity or special significance, has research potential that surpasses the current state of the art; is of singular historical importance, cultural importance, or architectural interest, or comparable reasons; and is not currently appropriate for conservation as the subject of scientific or historical study that would result in its physical alteration. A cultural property or location included in this category is considered worthy of segregation from all other land or resource uses, including cultural

property uses, that would threaten the maintenance of its present condition or setting, as pertinent, and it will remain in this use category until specified provisions developed in the cultural resource management plan are met in the future.

The Management Use category may be applied to any cultural property considered most useful for controlled experimental study that would result in its physical alteration by the BLM or other entities concerned with the management of cultural properties. Expenditure of cultural properties or data may be justified for purposes of obtaining specific information that would ultimately aid in that management of other cultural properties. Experimental studies may be aimed toward a better understanding of the kinds and rates of natural or human caused deterioration, effectiveness of protection measures and similar lines of inquiry.

The Sociocultural Use category is to be applied to any cultural property that is perceived by a specified social and/or cultural group as having attributes that contribute to maintaining the heritage or existence of that group. This use category signifies that the cultural property is to be managed in a way that takes those attributes into account, as applicable.

The Public Use category may be applied to any cultural property found to be appropriate for consideration as an interpretive exhibit in place, a subject of supervised participation in scientific or historical study, or related education and recreation uses by members of the general public.

The Discharged Use category means either that a cultural property that was previously qualified for assignment to any of the categories defined above no longer possesses that qualifying characteristic for that assignment to an alternative use; or that a cultural property's scientific use potential was so slight that it was exhausted at the same time the property was recorded, and no alternative use is deemed appropriate. Where a cultural property is involved, allocation to Discharged Use also means that records pertaining to the property represent its only remaining importance and that its location no longer presents a management constraint for competing land uses.

Those traditional cultural properties that are at least 50 years require consideration under the NHPA. BLM will analyze each proposed action by determining the likelihood of the presence of not only significant cultural properties, but also the potential for or the presence of traditional cultural properties. Potential impacts to traditional cultural properties subject to the NHPA and, therefore, determined eligible for the National Register of Historic Places, will be avoided, or if possible, mitigated.

FIRE MANAGEMENT

Fire management includes both wildfire actions and prescribed fire operations. Fire will be managed in the manner most cost-efficient and responsive to resource management objectives. The resource objectives identified in the RMP will provide the guidelines, direction and degree of suppression to be used.

Prescribed fire will be allowed to burn only under specific conditions. Planned fires will be used in accordance with approved activity plans. Prescribed burning will be administered on an individual basis in grassland, sagebrush and/or conifer types to improve wildlife habitat and vegetation production. Prescribed burns will be held in abeyance in WSAs. Prescribed burning will be addressed in the individual recreation activity plans for each designated wilderness area.

BLM will utilize two levels of suppression actions for wildfire situations. These are intensive and conditional suppression areas.

Intensive suppression will be applied to areas with high resource values, structures, improvements, oil and gas developments, commercial forest values, sagebrush and juniper areas, fire sensitive woody riparian areas (soil subgroups 6 and 17) and cultural values that require aggressive suppression action. Intensive suppression may also be used to prevent fire from spreading to adjoining private property and structures.

BLM will protect these flammable, above ground public developments through intensive suppression efforts:

1. Recreation sites; Camp Creek, Montana Gulch, Buffs Picnic Area and Faraasen Park.
2. Administrative Sites; Zortman Station and Communication Sites (Radio, Remote Automated Weather Stations).
3. Range Improvement Structures; hypalon aprons and storage bags.

Conditional suppression will be applied to areas with resources low in value or not warranting intensive suppression actions and high suppression cost. Responses will depend on the fire's potential and the cost effectiveness of suppression. Suppression strategies may range from immediate initial attack to indirect response such as confining or containing fires within a particular area. Initial attack may be used on one sector of a fire while indirect responses such as burning out, backfiring or allowing the fire to burn to a natural break, may be used on another sector of the fire.

BLM will use conditional suppression actions in these areas:

1. Grass/shrub fuel types (Fire Management Zone 1 - Soil subgroups 1, 2, 5, 10 and 13). The allowable burn acreage in this fuel type is 500 acres.
2. Missouri Breaks (Fire Management Zone 2 - Soil subgroups 3, 14, 16 and 17). The allowable burn acreage in this fuel type is 100 acres.
3. Mountain timber fuel type (Fire Management Zone 3 - Soil subgroups 15, 17, 18 and 19). The allowable burn acreage in this fuel type is 20 acres.

Implementation

Allowable burn acreage allows acceptable resource losses while using a safe, more cost effective suppression action. That is, waiting for fire to burn out of a steep coulee or draw with a thick juniper canopy rather than taking an intensive, costly and dangerous suppression action. However, this does not mean all fires will be allowed to burn to a predetermined acreage before suppression action is initiated.

FOREST MANAGEMENT

BLM will allow the harvest of forest products within the average allowable cut of 650 thousand board feet (MBF) per year and will meet the demand for minor forest products as feasible. Forest products will be sold at fair market value and cutting plans will be coordinated with adjacent landowners when possible. Timber sales will be with wildlife habitat objectives in mind.

Even though there are approximately 78,200 acres of productive forest land in the planning area, only 29,000 of these acres support the timber base. The 49,200 acres in the Breaks are not in the timber base due to fragile soils, steep slopes, dry sites, crucial wildlife habitat and poor timber quality. However, forest products may be harvested from these areas on a selected sustained yield basis.

The annual allowable cut will be offered through sawtimber sales and the demand for minor forest products will be met within the constraints of the Small Sales of Forest Products Programmatic EA.

Implementation

Commercial thinnings will be used as a silviculture practice on intensively managed forest lands to increase production of stands between 30 and 90 years of age.

Christmas trees for personal use may be cut throughout the planning area, except in the Square Butte ONA, WSAs and recreation sites. Areas for commercial Christmas tree cutting will be considered on a case-by-case basis.

Permits will be issued for fuelwood (dead and/or down) materials for personal use on a demand basis outside of the Square Butte ONA and WSAs. Dead and down trees may be cut from cottonwood riparian areas on a case-by-case basis. The permits will contain a stipulation to identify and protect trees with significant wildlife value.

No control of endemic forest insect infestations are proposed. Epidemic infestations will be subject to control only where biological evaluations clearly demonstrate the need and feasibility of the action, or where the infestation is causing other damage, such as creating conditions for catastrophic wildfires.

The following timber harvesting techniques are presently being used by BLM when preparing timber sales.

1. Tractor logging will be limited to slopes with average gradients of less than 40%.
2. Roads will be constructed to the minimum standard necessary to remove the timber and protect the environment. Road locations will be based on topography, drainage, soils and other natural features to minimize erosion.
3. Skid trails will be water barred as needed, to retard soil erosion.
4. Streamside green strips will be left along perennial streams. Skidding through streams will not be allowed.
5. Logging units will be laid out to minimize the risk of wind throw of leave trees. Selection of leave trees will be made to improve the genetic composition of the regenerated stand. Clear-cut blocks will be less than 10 acres and shaped to resemble natural openings.
6. All slash burning will be done in conformance with state air pollution regulations.
7. If available, a minimum of three snags per acre plus replacement snags will be left for wildlife on all sales.

A list of Best Management Practices is found in Appendix E.

LANDS

BLM will protect or enhance the various resource values when considering applications or requests for the use of

BLM land. Uses in this category include rights-of-way (ROW), leases and permits.

BLM land will be retained unless this plan determines that selling a particular parcel(s) meets FLPMA disposal criteria, or exchanging BLM land is in the public interest. (See the Land Acquisition and Disposal issue and Appendix A.)

Unauthorized uses of BLM land will be resolved in an expeditious manner and new cases of unauthorized use will be resolved immediately.

Existing withdrawals and classifications, subject to review under the authority of section 204 (L) of FLPMA, are analyzed as part of this document. Recommendations for continuation or revocation are provided. New withdrawals are considered on an individual basis.

Rights-of-Way and Corridor Planning

There is one designated ROW corridor through the Phillips and Valley RAs. This designation was established for the Northern Border Pipeline by the Federal Register Publication dated August 28, 1979.

This RMP will not identify corridors because of the small amounts of BLM land along occupied corridors.

Avoidance areas and windows are identified in the planning area. ROWs may be granted in avoidance areas only when no feasible alternative routes and/or sites are available. In avoidance areas, ROW stipulations from BLM Manual Handbook H-2801-1 will be used to protect resource values, including visual qualities. Windows will be used to channel linear ROWs around specific avoidance areas. WSAs are not subject to ROW application.

Judith RA

Avoidance areas include the Acid Shale-Pine Forest ACEC and BLM land in, Judith River Canyon, the South Moccasin Mountains and the Judith Mountains. Windows in the Judith Mountains are identified through Ross Pass and along the county road west of Black Butte.

The Woodhawk and Dog Creek South WSAs are temporary exclusion areas, pending wilderness area determinations.

Communications site ROWs in the Judith RA will be confined to the Judith Peak and the South Moccasin Mountains communication sites. Judith Peak and the South Moccasin Mountains will be used for existing and future communications facilities. All future facilities in the South Moccasin Mountains will be placed in one building. A communications site plan for Judith Peak was implemented in 1986, and will be carried forward in this document.

Valley RA

The existing communications site located in the SE1/4SE1/4, Section 22, T. 32N., R. 37E. must first be considered for use prior to new sites being established.

The Bitter Creek and Burnt Lodge WSAs are temporary exclusion areas, pending wilderness area determinations.

Phillips RA

Communications site ROWs in the Little Rocky Mountains will be confined to Antoine Butte. Other sites in the Phillips RA will be considered on an individual basis.

The Antelope Creek, Burnt Lodge and Cow Creek WSAs are temporary exclusion areas, pending wilderness area determinations.

Implementation

ROWs outside of avoidance areas and WSAs will be considered on a case-by-case basis with appropriate stipulations from BLM Manual Handbook H-2801-1 incorporated into the ROW grant. The primary authorities for issuing of ROWs are FLPMA and the Mineral Leasing Act of 1920 (MLA).

Leases and Permits

The planning area will be closed to cabin site leasing. Other Section 302 (b) leases, Recreation and Public Purposes (R&PP) leases and Section 302 (b) permits will be considered on an individual basis. The following lands in the Phillips RA have been identified for R&PP lease and/or conveyance.

1. T. 25N., R. 25E. (Zortman Townsite)
Section 17, Block 8 Lots 3 & 4
2. T. 25N., R. 24E. (Landusky Townsite)
Section 27, Block 3 Lots 10, 13 & 18

Implementation

The primary authorities for granting leases are Section 302 (b) of FLPMA and the Recreation and Public Purpose Act of 1926.

Public Sale

The following BLM lands are identified for public sale and meet certain sale criteria of Section 203 of FLPMA. The

tract in the Valley RA meets disposal criteria 1 of Section 203. The tracts in the Phillips RA meet disposal criteria 1 and 3 of Section 203 and are subject to the floodplain restrictions of Executive Order 11988.

1. Valley RA

T. 30N., R. 37E.,
Section 15, SW1/4SW1/4

2. Phillips RA

T. 25N., R. 25E., (Zortman Townsite)
Section 17, Block 6 Lot 9
Block 7
Block 8 Lots 3 and 4
Block 14 Lots 1, 2, 3 and 4
Block 15 Lots 1, 2, 3 and 4
Block 16 Lots 1, 2, 3 and 4

T. 25N., R. 24E., (Landusky Townsite)
Section 27, Block 3 Lots 10, 13 & 18

Implementation

The authority for sale of BLM land is Section 203 of FLPMA.

Unauthorized Use

Unauthorized uses include agricultural and occupancy trespass, unlawful enclosure and unlawful linear facilities such as powerlines and pipelines.

Implementation

Unauthorized uses of BLM land will be resolved. Unauthorized users are responsible for fair market rental for current and past years of unauthorized use and full reimbursement for administrative costs, rehabilitation and stabilization.

Withdrawal Review

This section discusses withdrawals or land classifications undergoing the withdrawal review and revocation process or reviewable withdrawals that have not been reviewed. The legal descriptions and maps for the following withdrawals and classifications are available in the appropriate resource area office.

1. Coal withdrawal 1

Coal withdrawal 1 (120.34 acres) is located in Chouteau County and was withdrawn by Executive Order in July 1910 to allow time to determine and classify BLM land as valuable for coal. The withdrawal segregates this area from the public land laws, including the mining laws. BLM's recommendation is to revoke the withdrawal and open the area to mineral entry because the coal classification is complete.

2. Blacktail Creek Paleontological Withdrawal

The Blacktail Creek Paleontological site (320 acres) was withdrawn to protect rare fossil fish, mainly the Doryopterid Fish. The site is located in Fergus County and was withdrawn by Public Land Order 6674 on April 27, 1988. The lands are segregated from settlement, sale, location or entry under the general land laws, including the United States mining laws, but not from leasing under the mineral leasing laws. BLM is the surface management agency and decided to withdraw the Blacktail Creek Paleontological site and will continue the withdrawal until the expiration date of April 27, 2008. A review will take place 2-years before the expiration date.

3. Square Butte

The Classification and Multiple-Use Act of September 1964, classified Square Butte for retention and multiple use management. Square Butte is located in southeast Chouteau County. The classification is for 1,946.53 acres and segregates against appropriation under the agricultural land laws and from sales under section 2455 of the Revised Statutes. The lands were also segregated from the mining and mineral leasing laws. The ACEC section of this RMP will provide recommendations concerning the continuation or termination of the classification.

4. Powersite Reserves 33, 37 and 56

Powersite Reserves (PSR) 33 and 37 were created by an Executive Order dated July 2, 1910, and PSR 56 was created by Secretarial Order dated November 9, 1909. The reserves are located along the Judith River from Willow Creek to Brown Coulee and total 1,698.23 acres. The reserves segregate against settlement, sale or location under the public land laws but not from the mining or mineral leasing laws. Completion of withdrawal review will require a water power potential evaluation. If the reserves do not have any water power potential, the withdrawals should be revoked. BLM is the surface management agency.

5. Powersite Classification 232

Powersite Classification (PSC) 232 is a linear withdrawal 20-feet wide created by Secretarial Order dated June 25, 1929. The classification is located in the Butte and Lewistown Districts and the total acreage is unknown. PSC 232 does not segregate against settlement, sale or location under the public land laws and is open to mining. PSC 232 was withdrawn to protect existing electrical transmission lines and not for potential powersite values. PSC 232 should be revoked because the existing transmission lines are authorized and some of the affected lands are in private ownership. The BLM is the surface management agency.

6. Powersite Classification 301

Powersite Classification 301 was created by Secretarial Order dated August 31, 1937. PSC 301 is located along the Upper Missouri National Wild and Scenic River (UMNWSR) and is about 30,200 acres in size. PSC 301 segregates against settlement, sale or location under the public land laws, but not from the mining or mineral leasing laws. PSC 301 is recommended for revocation. Most of PSC 301 is located within the UMNWSR which is part of the West HiLine RMP, which also recommended revocation. Even though a small part of PSC 301 is within the JVP RMP, the final processing of the withdrawal review of PSC 301 will take place under the guidance of the West HiLine RMP. The BLM is the surface management agency.

7. Powersite Classification 369

Powersite Classification 369 was created by Secretarial Order dated October 24, 1944. PSC 369 is located along the Missouri River between Great Falls and Fort Benton and is about 2,000 acres. PSC 369 segregates against settlement, sale or location under the public land laws, but not from the mining or mineral leasing laws. Completion of withdrawal review will require a water power potential evaluation. If PSC 369 does not have water power potential, the withdrawal should be revoked. The BLM is the surface management agency.

8. Powersite Classification 428

Powersite Classification 428 was created by Secretarial Order dated July 14, 1953 and consists of two islands along the Missouri River. One island (14.7 acres) is located downstream from Wolf Creek in the Great Falls RA. The other island (48.86 acres) is located upstream from the Marias River in the Judith RA. PSC 428 segregates against settlement, sale or location under the public land laws, but not from the mining or mineral leasing laws. The island in the Judith RA was recommended for revocation. Completion of withdrawal review will require a water power potential

evaluation. If PSC 428 does not have water power potential, the withdrawal should be revoked. The BLM is the surface management agency.

9. Judith Peak, Red Mountain and Grass Range Missile Silo

The Judith Peak Radar site (60.36 acres) and the Red Mountain Radar site (6.54 acres) are located in the Judith Mountains. The Missile Silo (25.00 acres) lies adjacent to State Highway 19 between Grass Range and Bohemian Corner.

A. Judith Peak & Red Mountain

The Judith Peak radar site was withdrawn by PLO 1758 dated November 21, 1958 and the Red Mountain radar site was withdrawn by PLO 2186 dated August 19, 1960. Both of these withdrawals segregate, subject to valid existing rights, the areas from all forms of appropriation under the public lands laws, including the mining and mineral leasing laws but not disposal of materials under the Act of July 31, 1947. A revocation application was filed in 1971, by the Corps of Engineers (COE) on behalf of the Air Force and ever since the BLM has had surface management responsibilities. All improvements have been removed and the land reclaimed and are ready for revocation. There are suspended mining claims that may be validated when the revocation is finalized and will be treated as prior existing rights. The Judith Peak and Red Mountain sites are discussed as part of the hardrock mining issue in this RMP.

B. Grass Range Missile Silo

The Grass Range Missile Silo was withdrawn by PLO 2336 dated May 9, 1961, which segregates the area from all forms of appropriation under the public land laws, including the mining and mineral leasing laws and disposal of materials under the Act of July 31, 1947. The withdrawal was reviewed in 1983, with a recommendation to continue a buffer zone in relation to the Minuteman Missile Site located on adjacent private land. The Air Force is the surface management agency.

Valley RA

1. Public Water Reserve 62

Public Water Reserve 62 was withdrawn by Executive Order dated April 8, 1919, and totals 433.55 acres in Valley County. Public Water Reserve 62 is located under Fort Peck Lake. It was withdrawn from settlement, sale, location and entry. The managing agencies are the Fish and Wildlife

Service and the Corps of Engineers. The withdrawal is recommended for revocation.

2. Fort Peck Project

The Fort Peck Lake Project was created by five Executive Orders (EO) numbered 6491, 6707, 6841, 7331 and 9132 and one Secretarial Order (SO) dated July 24, 1935 which withdrew 549,163.40 acres of public domain. The withdrawals segregate against settlement, location, sale and entry and all forms of appropriations. The majority of the withdrawn lands are inundated by Fort Peck Lake and the rest are located along the lake. Some of the withdrawn lands are located along the Missouri River above and below the lake. Most of the Fort Peck Lake Project is located within the Charles M. Russell National Wildlife Refuge (CMR) which bisects the Lewistown and Miles City District boundaries. The Fort Peck Project is managed by the Corps of Engineers concurrently with the CMR which is managed by the FWS.

The Fort Peck Lake Project is reviewable under Section 204 (L) of FLPMA. On September 7, 1989, the Corps of Engineers submitted a draft report entitled "A Review of Public Domain Withdrawals and Executive Order 12512 Project Survey." The report recommends the revocation of 366,317.21 acres. Most of this acreage either duplicates previous Fort Peck Lake Project withdrawals or is in private ownership within CMR. Table 2.4 shows the amount of withdrawn land recommended for revocation within the Valley RA and outside the CMR.

TABLE 2.4
LAND IDENTIFIED FOR REVOCATION

Federal Land	Acres
EO 6707	156.94
EO 7331	198.79
Total	355.73
Private Land with reservations (EO 6707)	Acres
Ditches and Canals	813.52
Oil and Gas	240.00
Total	1,053.52

Source: BLM, 1990

The 355.73 acres of federal land is located between the confluence of the Milk River and the Missouri River. BLM concurs with the Corps of Engineers recommendation for relinquishment and will accept management responsibility for the acreage (343.12 acres) that remains north of the Missouri River and west of the Milk River, since both rivers

have changed their course. The rest of the acreage (12.61 acres) lies north of the Missouri River but further west of the Milk River. BLM concurs with the relinquishment of this tract and will accept management responsibility. The private land with reservations (EO 6707) will have the notation removed from the record.

Phillips RA

1. Powersite Reserve 499

Powersite Reserve 499 (approximately 20 acres) is a linear withdrawal 50-foot wide created by Secretarial Order dated July 19, 1915. The classification is located in Townships 24 and 25 North and Range 24 East. PSR 499 does not segregate against settlement, sale or location under the public land laws. PSR 499 is open to mining. PSR 499 was withdrawn to protect an existing electrical transmission line (MTMHVR-045157 and/or MTMGF-059068) and not for potential powersite values. PSR 499 should be revoked because a transmission line does not exist and some of the affected lands are in private ownership. A water power potential report is not necessary because the classification was not made to protect potential powersite values. BLM is the surface management agency.

2. Powersite Reserve 500

Powersite Reserve 500 (approximately 90 acres) is a linear withdrawal 50-foot wide created by Secretarial Order dated July 19, 1915. The classification is located in Townships 23 North and Range 22 East, Townships 24 and 23 North and Range 23 East and Township 24 North and Range 24 East. PSR 500 does not segregate against settlement, sale or location under the public land laws. PSR 500 is open to mining. PSR 500 was withdrawn to protect an existing electrical transmission line (MTMHVR-045157 and/or MTMGF-059067) and not for potential powersite values. PSR 500 should be revoked because a transmission line does not exist and some of the affected lands are in private ownership. A water power potential report is not necessary because the classification was not made to protect potential powersite values. BLM is the surface management agency.

3. Landusky and Zortman town sites, Camp Creek and Montana Gulch campgrounds, Azure Cave and Recreation Site

On February 23, 1966, the FS transferred the Little Rockies Division of the Lewis and Clark National Forest to the BLM under PLO 3938. The transfer created a withdrawal in the Little Rockies for the Landusky (82.50 acres) and Zortman (107.50 acres) town sites, the Camp Creek (40.00 acres) and Montana Gulch (60.00 acres) campgrounds, Azure Cave (139.41 acres), and a designated recreation site (15.00 acres) near Landusky. The lands were withdrawn from all forms of appropriation under the public land laws, including the mining laws. BLM is the surface management agency.

Lots in both town sites were disposed through pre-emption rights and at public auction. Lots or blocks of lots within a floodplain or located on very steep slopes were not sold. Lots or blocks of lots with dedicated BLM facilities were withheld from sale. In Landusky a teacherage and community hall site were not sold. In Zortman a church and BLM administrative site were not sold.

The designated recreational site near Landusky was not developed. Instead, Phillips County was authorized to operate a sanitary landfill on a portion of the site on behalf of Landusky. On February 7, 1989, a revocation removed the withdrawal on the 5-acre sanitary landfill site. Later, the 5 acres were exchanged to Phillips County. The rest of the site remains withdrawn.

A withdrawal review was completed on August 24, 1980, and recommended that the withdrawal for the campgrounds and Azure Cave be continued for a 20 year period. Azure Cave will be addressed in the ACEC section of this RMP. The withdrawal for the designated recreation site near Landusky was recommended for revocation because there are no plans for developing a recreational facility. The withdrawal for the townsites were recommended for revocation in order to allow possible disposal. The decision for continuation, modification or revocation will be addressed in the Hardrock Mining issue of this RMP.

Bureau of Reclamation Withdrawn Lands

Various Executive or Secretarial Orders dated between 1902 and 1910 withdrew BLM land for the Milk River Project, either as first form or second form withdrawals. First form withdrawals include lands that may be needed in the construction and maintenance of irrigation projects. Second form withdrawals include lands not needed in the actual construction and maintenance of irrigation projects, but which may be irrigated from such projects. First form withdrawals are segregated from all forms of appropriation under the public land laws, including the mining laws, but not the mineral leasing laws. The Act of April 23, 1932 provides reclamation with discretionary authority to allow entry under the mining laws. Second form withdrawals are currently segregated from surface entry, but not from the mining laws or mineral leasing laws.

The Milk River Project, in Valley County, includes a diversion structure near Vandalia, Montana. The project in Phillips County includes Dodson Dam, a diversion structure and Nelson Reservoir a storage reservoir. The project contains many miles of main line, feeder canals and return ditches or drains in both counties.

About 96% of the withdrawn lands in Valley County and 74% in Phillips County were transferred into private ownership. Any United States interest that remains withdrawn is subject to withdrawal review under FLPMA

204 (l). Approximately 2,100 surface acres remain in federal ownership in Valley County and 32,300 surface acres in Phillips County. The remaining lands in Valley County are located along the Milk River Valley with some lands developed with ditches or canals and seepage areas. The remaining lands in Phillips County are located in three areas. The first area (16,500 acres) includes Nelson Reservoir, Bowdoin National Wildlife Refuge and the Beaver Creek flood plain approximately 4 to 6 miles south of Nelson Reservoir. The second area (10,000 acres) is situated in the Beaver Creek drainage approximately 18 miles south of Nelson Reservoir. This acreage is undeveloped. The third area (6,200 acres) is scattered along the Milk River Valley with some lands developed with ditches or canals and seepage areas.

Some of the withdrawn lands are managed by the Bureau of Reclamation (BR) subject to third party agreements. BR has entered into agreements with the Malta and Glasgow Irrigation Districts on June 27, 1975 and December 11, 1981. The irrigation districts subsequently lease the withdrawn lands for grazing and agricultural purposes. On

some lands, BR has entered into agreements with the MDFWP for managing areas either as a park or a wildlife management area. There is a local agreement between the BLM and BR for the management of the Beaver Creek area (9,926 acres). This agreement was signed March 5, 1974, and was a subordinate agreement to the 1972 interagency agreement. The current national agreement is dated March 25, 1983, and provides direction for the management of BR withdrawn lands.

Bureau of Reclamation withdrawn lands have been justified for continuation or revocation by using the terms of a letter of agreement between the Lewistown District Office and BR Montana Projects Office. The agreement and implementing procedures are listed in Appendix G. Draft justification reports submitted by BR show 12,218.52 acres recommended for revocation (see Table 2.5), of which 698.99 acres are also withdrawn by the FWS and/or Corps of Engineers and will remain withdrawn. Therefore, a total of 11,519.53 acres may return to BLM land status, of which 11,275.87 acres are located in the Phillips RA and 243.66 acres in the Valley RA.

TABLE 2.5
BUREAU OF RECLAMATION LAND
IDENTIFIED FOR CONTINUATION OR REVOCATION

Serial No.	Revoke	Criterion				Total
		A	E	G	H	
M-40722	0.00	0.00	0.00	114.90	0.00	114.90
M-40723	0.00	40.00	0.00	0.00	0.00	40.00
M-40728	0.00	78.10	0.00	0.00	0.00	78.10
M-40735	1,361.88	1,346.98	0.00	850.00	511.33	4,070.19
M-40740	1,540.52	240.00	0.00	2,008.06	120.00	3,908.58
M-40742	64.53	0.00	0.00	161.97	160.00	386.50
M-40837	2,880.00	20.00	0.00	490.00	809.29	4,199.29
M-40838	0.00	0.00	0.00	160.00	0.00	160.00
M-40869	359.54	7,570.56	0.00	60.00	390.00	8,380.10
M-40871	0.00	0.00	0.00	120.00	0.00	120.00
M-40872	440.54	280.52	0.00	0.00	0.00	721.06
M-40876	4,482.56	0.00	0.00	0.00	4,285.62	8,768.18
M-40877	389.96	0.00	0.00	0.00	0.00	389.96
M-40884	0.00	686.47	0.00	0.00	0.00	686.47
M-40885	0.00	292.89	0.00	0.00	0.00	292.89
M-40886	0.00	33.56	80.00	135.30	0.00	248.86
M-40903	0.00	165.50	0.00	0.00	0.00	165.50
M-40908	0.00	548.43	0.00	0.00	0.00	548.43
M-40918	40.00	0.00	0.00	0.00	0.00	40.00
M-40919	58.64	0.00	0.00	80.00	0.00	138.64
M-40933	80.00	0.00	0.00	0.00	0.00	80.00
M-40946	520.35	0.00	0.00	0.00	0.00	520.35
M-44079	0.00	0.00	0.00	160.00	0.00	160.00
M-49756	0.00	121.09	0.00	0.00	0.00	121.09
M-79789	0.00	0.00	0.00	0.00	20.74	20.74
Total	12,218.52	11,424.10	80.00	4,340.23	6,296.98	34,359.83

Criterion A: Lands Within a Reservoir Boundary

Criterion E: Land Needed for Flood Control Structures and Impoundment Areas

Criterion G: Lands Needed for Named Main Delivery Canals

Criterion H: Activity Planning Areas

Source: BLM and BR, 1990

In the Phillips RA, 6,441.18 acres, is suitable for disposal and will be used to achieve our acquisition goals (see Appendix A). The remaining 4,834.69 acres with riparian, grazing and recreational values will be managed by this RMP. In the Valley RA, 185.02 acres is suitable for disposal and will be used to achieve our acquisition goals (see Appendix A). The remaining 58.64 acres are suitable for retention because of wildlife and recreational values and will be managed by this RMP. On July 14, 1992 the Bureau of Reclamation submitted their final justification statements for their withdrawn land within the planning area. The submission of the justification statements at this point in the planning process does not allow BLM to complete the process for withdrawals proposed for revocation. BLM will complete the withdrawal review process and update the acreages shown in Table 2.5 through plan maintenance, or if necessary a plan amendment, for the lands proposed for revocation.

WATERPOWER AND WATER STORAGE MANAGEMENT

All BLM withdrawals for waterpower and water storage are recommended for revocation pending site evaluation for water power potential.

Implementation

The evaluation of waterpower and water storage sites will consider the historical and current demand for water power at the site, the original and current size of the withdrawal, the size of the withdrawal in relation to the need for a reservoir, the water rights that may need to be established, and a site feasibility study.

SIGNING

BLM will ensure that appropriate signs and posters are used to promote safety and convenience for visitors and users, define boundaries, identify management practices, provide information about geographic and historic features and protect vulnerable land areas and resources from misuse.

A sign plan will be developed which includes an inventory of existing signs, proposed new signs and a schedule for maintenance.

Implementation

Bureau Manual 9130 provides guidance for the procurement, installation and maintenance of signs on BLM land.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)

BLM must identify, evaluate and designate ACECs through an RMP or an amendment to an RMP. Areas are nominated by the public, BLM or other federal and state agencies. All nominations are evaluated to determine if they meet both relevance and importance criteria. A nomination must meet one or more relevance and importance criteria to be considered a potential ACEC. A potential ACEC is designated if the area requires special management.

BLM received 31 nominations within the planning area. In the draft RMP/EIS eight of these nominations met both the relevance and importance criteria and were addressed by alternatives developed for the ACEC and Prairie Dog and Black-footed Ferret Management issues. Appendix H explains the evaluation process and provides more information for the 31 nominations.

During the public comment period on the draft RMP/EIS new information was received for the Woody Island Coulee, Joiner Coulee and Mountain Plover ACEC nominations. These three nominations were re-evaluated to determine if they met the relevance and importance criteria. Joiner Coulee and Woody Island Coulee do not meet the relevance and importance criteria. The Mountain Plover ACEC nomination met the criteria and will be addressed through an amendment to the Judith Valley Phillips RMP/EIS. Nominations which meet the criteria as potential ACECs must be reviewed through the Bureau's planning and NEPA processes.

BLM received additional ACEC nominations in November, 1990, and during the public comment period on the draft RMP/EIS. These nominations are the Mixed Grass Prairie in the Valley RA and the Little Rocky Mountains, Old Scraggy Peak and Saddle Butte in the Phillips RA. To maintain the planning schedule and commitment to the public, BLM did not include additional nominations in this RMP/EIS. If these nominations qualify for further consideration, per the ACEC criteria, alternatives for special management will be considered through an amendment to the Judith Valley Phillips RMP/EIS.

WILD AND SCENIC RIVERS

BLM has identified and evaluated various river segments to determine their potential inclusion in the National Wild and Scenic Rivers System per Section 5(d) of the Wild and Scenic Rivers Act (WSRA).

The river study process is a three-step assessment; eligibility, tentative classification of rivers found to be eligible, and a determination of suitability.

BLM reviewed 187 rivers and streams within the planning area which may have free-flowing and outstandingly remarkable values. Of these, 182 were free-flowing but did not possess outstanding remarkable values, and 4 were neither free-flowing or possessing outstandingly remarkable values. One segment of the Judith River was determined to be both free-flowing and possessing outstandingly remarkable values. This is a 27.1-mile long segment from Ming Coulee to Anderson Bridge. This segment is free-flowing and possesses outstandingly remarkable scenic, recreational and geologic values. Other segments of the Judith River have little or no public ownership and BLM lands along those segments do not possess outstandingly remarkable values. Appendix I provides additional information on the evaluation process.

Through the evaluation process for the Judith River, this segment was determined to be not suitable for inclusion in the National Wild and Scenic Rivers System because of severe manageability problems. These include lack of access to the area, the small scattered BLM land pattern and the overwhelming constraints of private land ownership and management in the area. Lack of support by any other federal, state or local interest combined with the small percentage of BLM land in the area appear to make joint consideration of the area infeasible as well. This recommendation will be carried forward through all alternatives in this RMP/EIS. There will be no wild and scenic river discussion in the issues section of this chapter, since the above recommendation applies to all alternatives. Under interim management, this segment of the Judith River will be managed as part of the Judith River Special Recreation Management Area (SRMA #MT060852). There are no known threats to the pristine condition of the Judith River or its valley between Ming Coulee and Anderson Bridge.

ALTERNATIVE A (No Action - Current Management)

This alternative represents a continuation of present management direction and would continue to implement policies, regulations and decisions from previous planning documents. This is the No Action alternative required by Council on Environmental Quality (CEQ) regulations. If selected, this alternative plus the guidance in the Management Common To All Alternatives section would form the RMP.

Land Acquisition and Disposal

BLM would pursue (through exchange or purchase with willing proponents and/or sellers) private, state, or other land that would meet the objectives of the State Director's Guidance on Land Pattern Review and Land Adjustment (1984) (see Appendix A). BLM would pursue acquisitions as opportunities arise. The main objective would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability.

A total of 166,021 BLM acres would be available for disposal through exchange to meet the acquisition objectives (see Table 2.6 and Appendix A). BLM land identified for exchange would be subject to evaluation and the possible retention of cultural, mineral, wildlife and riparian or wetland resources. An environmental analysis and Notice of Realty Action would be completed for each disposal action.

TABLE 2.6 ALTERNATIVE A BLM LAND AVAILABLE FOR EXCHANGE	
Resource Area	Acres
Judith	
Chouteau County	6,024
Fergus County	42,491
Judith Basin County	2,406
Petroleum County	17,410
Valley	34,089
Phillips	63,601
Total	166,021

Source: BLM, 1990

Implementation

BLM land may be sold to help facilitate a purchase or exchange action or maintain the respective county tax base. However, since no BLM lands are currently identified for sale, a plan amendment would be prepared under this alternative.

As opportunities arise, BLM would evaluate land exchanges involving private and state inholdings within the Charles M. Russell National Wildlife Refuge (CMR) on a case-by-case basis.

Acquisitions could occur by exchange or purchase through negotiation with willing landowners. Exchange would be the primary method of acquisition and may include BLM land within or outside the planning area.

Access to BLM Land

BLM would pursue access in the public interest while properly managing access within the Bureau's multiple-use mandate. Access would be sought for administrative purposes, for authorized users and for the general public.

Efforts to acquire new and or additional access would be concentrated in the high, medium and low priority areas as identified in the State Directors Guidance (1989).

Access would be pursued to provide access to BLM land that contains public benefits, maintains the present road and trail system, and to construct and maintain roads and trails identified for administrative and public access.

Implementation

Access would be accomplished primarily by easements or land exchanges. Other methods include, but are not limited to cooperative agreements, Land and Water Conservation Fund acquisitions or patent reservations.

Current management direction includes public land signing, mapping and user outreach. Public access routes and boundaries would be signed and restricted ORV travel areas would be identified and mapped.

Off-Road Vehicle Designations

BLM would restrict ORV use yearlong to existing roads and trails or close specific areas to protect resource values, wilderness values in the WSAs, vegetative cover and fragile soils. Other BLM land would remain open to ORV use to provide cross-country travel and recreation use for ORV activities.

BLM would designate 2,375,440 BLM acres open, 428,770 BLM acres limited and 1,947 BLM acres closed to ORVs (see Table 2.7 and Figure 2.2).

TABLE 2.7 ALTERNATIVE A BLM LAND DESIGNATED AS OPEN, LIMITED, OR CLOSED TO ORVs				
Resource Area	Open	Limited Seasonal	Limited Yearlong	Closed
Judith	476,074	0	223,560	1,947
Valley	953,996	0	65,890	0
Phillips	945,370	0	139,320	0
Total	2,375,440	0	428,770	1,947

Source: BLM, 1990

Areas Closed

The Square Butte ONA would remain closed to all types of motorized travel (1,947 acres).

Areas Limited Yearlong

ORV use in the six WSAs (Bitter Creek, Burnt Lodge, Antelope Creek, Woodhawk, Dog Creek South and Cow Creek) would be restricted yearlong to the existing roads and trails.

In those WSAs Congress determines suitable for wilderness designation, ORV use would be restricted yearlong to cherry-stemmed and boundary roads. All internal trails and ways would be closed to ORV use.

In those WSAs Congress determines unsuitable for wilderness designation, the ORV designations would be identical to the adjacent BLM lands. For example, if found unsuitable for wilderness designation the Bitter Creek, Burnt Lodge, Antelope Creek and Cow Creek WSAs would be designated open to ORV use; and in the Woodhawk and Dog Creek South WSAs, ORV use would be limited yearlong to existing roads and trails.

ORV use on BLM land in Frenchman Creek, Cottonwood Creek and Little Rocky Mountains would be restricted yearlong to existing roads and trails to reduce user conflicts and protect fragile soils.

ORV use on slopes of 30% or greater in the Missouri Breaks, Musselshell Breaks, Judith River Breaks, Arrow Creek Breaks, Highwood Mountains, Little Belt Mountains, Snowy Mountains, North and South Moccasin Mountains, Judith Mountains and the Yellow Water area would be restricted yearlong to existing roads and trails to protect vegetative cover, maintain watersheds and water quality and to minimize erosion on fragile soils.

Implementation

The guide for rating soil impacts from off-road travel would be used as an indicator to revise restrictions (MSO supplement to 7162 BLM Manual-Soil Interpretations).

BLM would publish an ORV map that delineates the boundaries and travel restrictions. Restricted areas would be signed with an explanation of allowed uses.

ORV regulations would provide permission for administrative access for lessees (grazing, oil and gas, mineral or other).

Figure 2.2 ORV Designations - Alternative A.

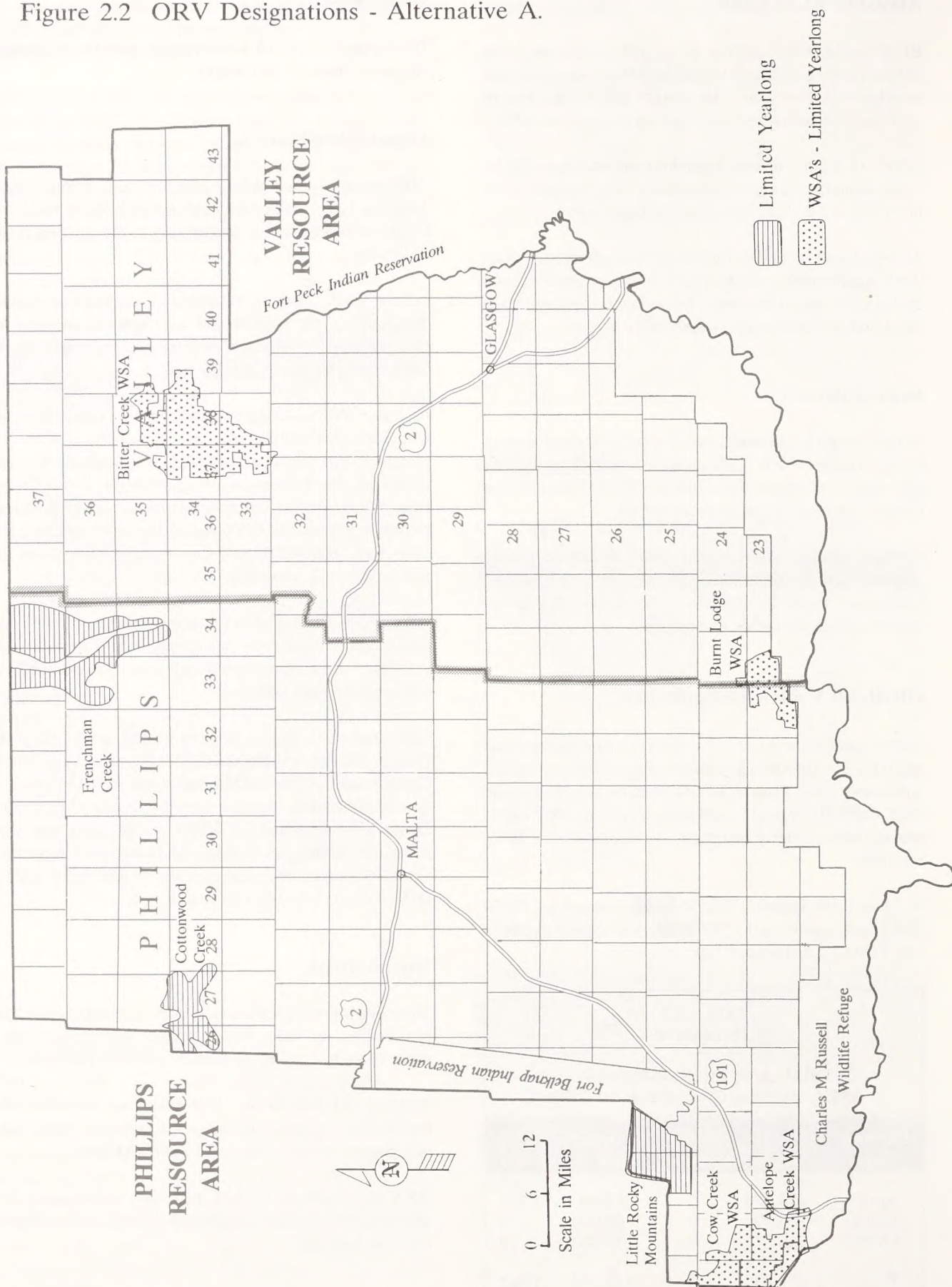
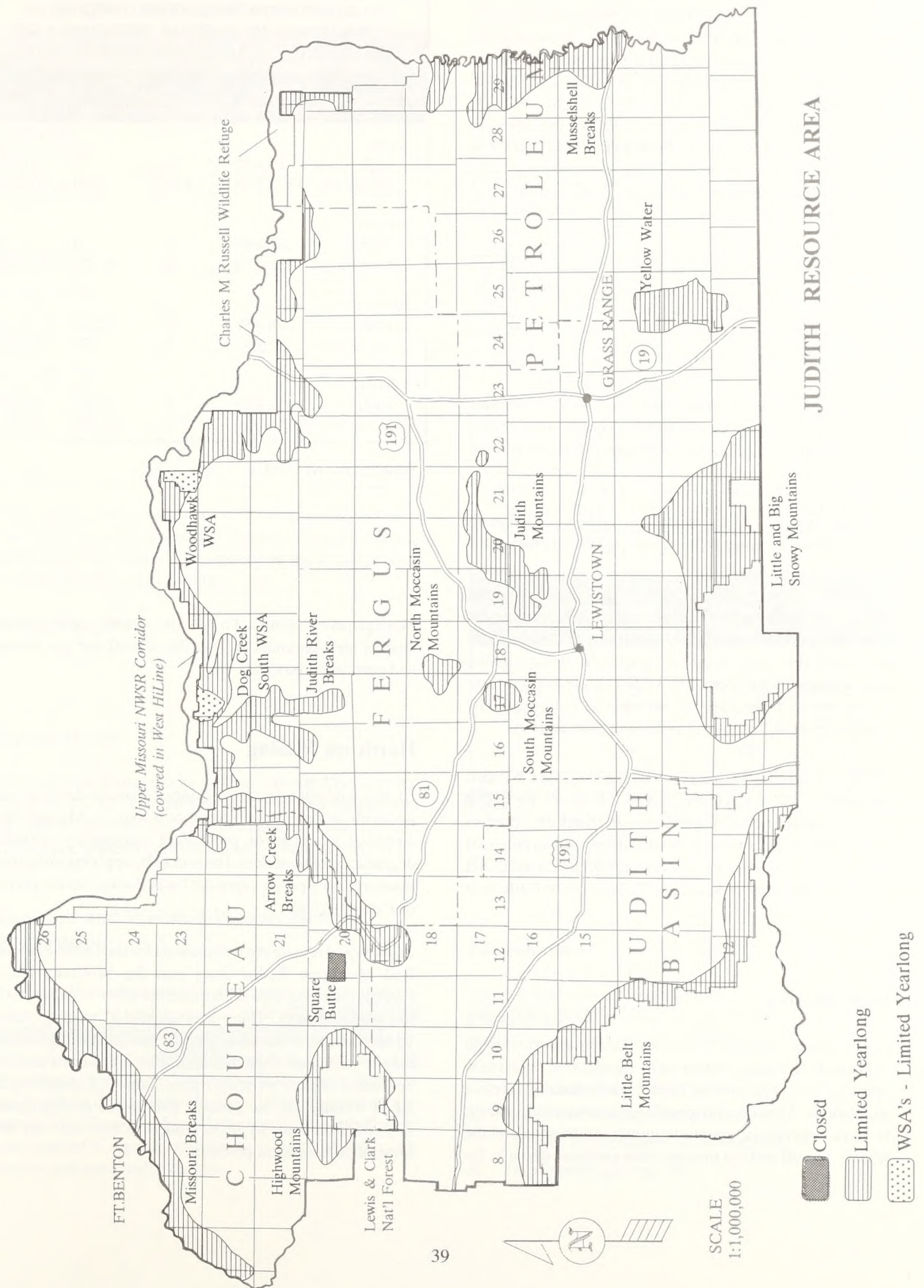


Figure 2.2 ORV Designations - Alternative A. (Continued)



Oil and Gas Leasing and Development

BLM would protect surface resource values on lands open to oil and gas leasing. Land available for oil and gas leasing would be subject to three levels of protective measures; timing restrictions up to 60 days and/or relocating the activity up to 200 meters; standard stipulations for a variety of resources should they be present on the lease during the permitting process (see Appendix B - Form MT 3109-1) and special stipulations for resources known to be present on the lease (see Appendix B - Form MT 3109-2, 3, 4). The leasing process would be consistent with that presently used in all other Montana BLM jurisdictional lands outside the planning area.

WSAs would remain closed to oil and gas leasing. Oil and gas leasing in the Little Rocky Mountains would not be allowed unless reserves have been proven in similar formations adjacent to the area. All remaining BLM land would be open to oil and gas leasing.

No Surface Occupancy restrictions would be used to protect critical paleontology sites, archaeological sites, some reservoirs and one crucial elk winter range located in south Valley County.

Seasonal and distance restrictions would be included in oil and gas leases to mitigate impacts to wildlife habitat.

These stipulations would include legal descriptions or maps which show the lease area and the purpose for the protective measure. Special stipulations would be applied on a certain portion of the lease to protect a specific resource. The standard stipulations (Form MT 3109-1) apply to all portions of the lease. If the specific resource is not found, the stipulation would not apply to the proposed activity.

All lands leased for oil and gas would be subject to standard stipulations and lease terms. Table 2.8 shows the BLM acreage subject to the respective restrictions or closed to leasing in high and moderate mineral development potential areas. There are no areas of low development potential within the planning area, except FS land in the Little Belt Mountains.

Implementation

Areas currently leased with only standard stipulations would continue to be leased with the same stipulations, unless new resource data indicates the need for additional protective stipulations. All areas with specific resources would continue to have appropriate special stipulations attached to the leases. The oil and gas management guidance given in the

TABLE 2.8
ALTERNATIVE A

**FEDERAL MINERAL ESTATE SUBJECT TO
STANDARD STIPULATIONS, SPECIAL
STIPULATIONS, NO SURFACE OCCUPANCY OR
CLOSED TO OIL AND GAS LEASING (Acres)**

Resource Area & Potential	Standard Stipulations	Special Stipulations	No Surface Occupancy	Closed
Judith				
High	18,490	0	0	5,150
Moderate	832,710	874	320	10,047
Valley				
High	67,840	0	0	0
Moderate	986,279	0	14,000	66,525
Phillips				
High	328,350	0	2,530	0
Moderate	997,532	0	960	56,080
TOTAL				
High	414,680	0	2,530	5,150
Moderate	2,816,521	874	15,280	132,652

Source: BLM, 1990

Management Common To All Alternatives section of this chapter and Appendix B describes the oil and gas leasing and permitting process.

Hardrock Mining

BLM would allow hardrock mineral resource development while mitigating impacts to other resources. Management emphasis would be on preventing unnecessary or undue degradation of nonmineral resources by applying mitigating measures on a project specific basis during Notice review or Plan approval.

BLM would revoke the withdrawals for the Judith Peak and Red Mountain Radar Sites and the Montana Gulch Campground, but would continue the other withdrawals in the planning area. There are suspended mining claims within the Judith Peak and Red Mountain Radar Sites that may be validated when the revocation is finalized and will be treated as prior existing rights. Table 2.9 identifies, by BLM withdrawal, the acreage that would be segregated from mineral entry by high, moderate, low and very low mineral development potential.

**TABLE 2.9
ALTERNATIVE A**

**FEDERAL MINERAL ESTATE THAT WOULD BE
SEGREGATED FROM MINERAL ENTRY (Acres)**

	Total Acres	Hardrock Mineral Development Potential			
		High	Mod	Low	Very Low
Judith RA					
Square Butte					
ONA*	1,947	0	0	0	1,947
Blacktail Fossil Site	320	0	0	0	320
Phillips RA					
Azure Cave	140	80	60	0	0
Camp Creek					
Campground	40	0	0	40	0
Landusky Town Site	83	0	83	0	0
Landusky Recreation Site	15	0	15	0	0
Zortman Town Site	108	0	70	38	0
Total	2,653	80	228	78	2,267

*The Square Butte ONA is not a withdrawal, but is a classification which segregates the area from the mining and leasing laws under the authority of the Classification and Multiple-Use Act of 1964.

Source: BLM, 1990

Implementation

The hardrock management guidance in the Management Common To All Alternatives section of this chapter and Appendix C describes the program for surface management of hardrock mineral exploration and development.

Riparian and Wetland Management of Watersheds

BLM would maintain and/or improve the riparian-wetland areas in existing and proposed AMPs based on proper functioning condition and desired plant community (see Appendix J). Ranking would be based on site potential as determined by intensive inventories in the Prairie Potholes and Northern Great Plains Regions. It may be necessary to recategorize Category M and C allotments for more intensive management if significant riparian or wetland values are present and need improvement.

The objective would be to protect existing riparian-wetland areas, improve potential riparian-wetland areas for waterfowl and wildlife habitat, and to comply with the nonpoint source water pollution section of the Clean Water Act. Riparian-wetland areas would be monitored and allocations and uses may be adjusted to accomplish management objectives.

Riparian-wetland condition objectives would be included in all new AMPs. When existing AMPs are reviewed, those lacking riparian-wetland objectives would be revised to include appropriate management objectives.

BLM would allocate 50% of any forage increases in riparian-wetland areas to watershed and wildlife and 50% to livestock.

Table 2.10 shows the number of allotments, miles of stream, and number of water sources on BLM land. The number of water sources is based on the reservoirs, potholes and springs with water rights. Intensive riparian-wetland inventories would update this information through plan maintenance.

**TABLE 2.10
ALTERNATIVE A**

**NUMBER OF ALLOTMENTS, MILES OF STREAM
AND NUMBER OF WATER SOURCES WITHIN
ALLOTMENTS MANAGED FOR RIPARIAN AND
WETLAND VALUES**

Resource Area	Number of Allotments*	BLM Land	
		Miles of Stream	Water Sources
Judith	97	125	390
Valley	73	235	1,225
Phillips	100	138	2,503
Total	270	498	4,118

*Portions of several allotments in the Judith and Phillips RAs are within the UMNWSR corridor.

Source: BLM, 1990

Implementation

BLM would improve or maintain stream floodplains to proper functioning condition through livestock grazing methods including, but not limited to:

1. Hot season grazing deferment,
2. Creation of separate riparian pastures,
3. Changes in kind and class of livestock,
4. Time control grazing, and

5. Other range management practices such as development of off-site water, salting, development of shade sources, herding, insect control, early pastures of crested wheatgrass, etc.

The same methods would be applied to those riparian areas identified as important for wildlife habitat. AMP revisions would be made to protect these areas from grazing as discussed in the Missouri Breaks Grazing EIS.

BLM would rehabilitate degraded riparian areas by seeding, planting and installing structures such as rock gabions, check dams, etc.

BLM would construct water impoundments on suitable sites as opportunities arise. An evaluation for soils and hydrologic characteristics would determine which proposed sites are suitable. Islands would be constructed on new and existing impoundments where feasible.

BLM would include mitigation measures for surface disturbing activities to protect wetland habitat.

BLM may fence specific existing and new fishing reservoirs to establish or protect shoreline vegetation for a perimeter 100-feet around the high water line.

Some newly constructed water impoundments would be limited to 2-acre feet in volume or would be built with water pass-through facilities, as required by the Milk River MOU with the BR.

Elk and Bighorn Sheep Habitat Management

BLM would maintain elk habitat to support the existing elk population on BLM land in the Missouri Breaks, Highwood Mountains and Little Belt Mountains.

BLM would provide habitat for elk expansion on BLM land, where forage is available, in the Missouri Breaks, Square Butte, Judith Mountains, North Moccasin Mountains and Little and Big Snowy Mountains (all in the Judith RA).

BLM would maintain bighorn sheep habitat on BLM land in the Little Rocky Mountains and Missouri Breaks and provide habitat for bighorn sheep expansion, where forage is available, in the Chimney Bend area.

BLM would provide 593,980 acres of elk habitat and 84,711 acres of bighorn sheep habitat on BLM land within the planning area (see Table 2.11 and Figure 2.3).

TABLE 2.11 ALTERNATIVE A ACRES OF ELK AND BIGHORN SHEEP HABITAT ON BLM LAND		
Resource Area	Elk Habitat	Bighorn Sheep Habitat
Judith	410,796	66,187
Valley	50,806	0
Phillips	132,378	18,524
Total	593,980	84,711

Source: BLM, 1990

Implementation

Current forage allocations would be maintained for each allotment containing elk and bighorn sheep habitat. That portion of the Judith Mountains currently closed to livestock grazing would remain closed. In the Valley RA, forage is allocated to support 250 head of elk for 6 months. Timber would be undisturbed to provide cover for elk on traditional summer and winter range.

Seasonal or No Surface Occupancy stipulations, or a no lease designation would restrict oil and gas activities to protect crucial elk and bighorn sheep habitat.

Prairie Dog and Black-Footed Ferret Management

BLM would eliminate (by poisoning) prairie dog towns on 10,013 BLM acres to stabilize the watershed and improve range condition. Appendix K identifies these prairie dog towns by resource area.

BLM would provide 3,308 acres of scattered prairie dog towns in the Phillips RA for the potential reintroduction of the black-footed ferret, associate species (mountain plover, burrowing owl, and ferruginous hawk), recreational viewing and temporary prairie dog shooting. Prairie dog towns on BLM land identified for reintroduction of the black-footed ferret would not be designated an ACEC.

BLM would also provide 770 acres of prairie dog towns for associate species and recreational viewing in the Valley RA. Table 2.12 summarizes the prairie dog and black-footed ferret management activities and acreages in this alternative. Prairie dog towns would be maintained within an acreage range as shown in Appendix K.

Figure 2.3 Elk and Bighorn Sheep Habitat - Alternatives A & C.

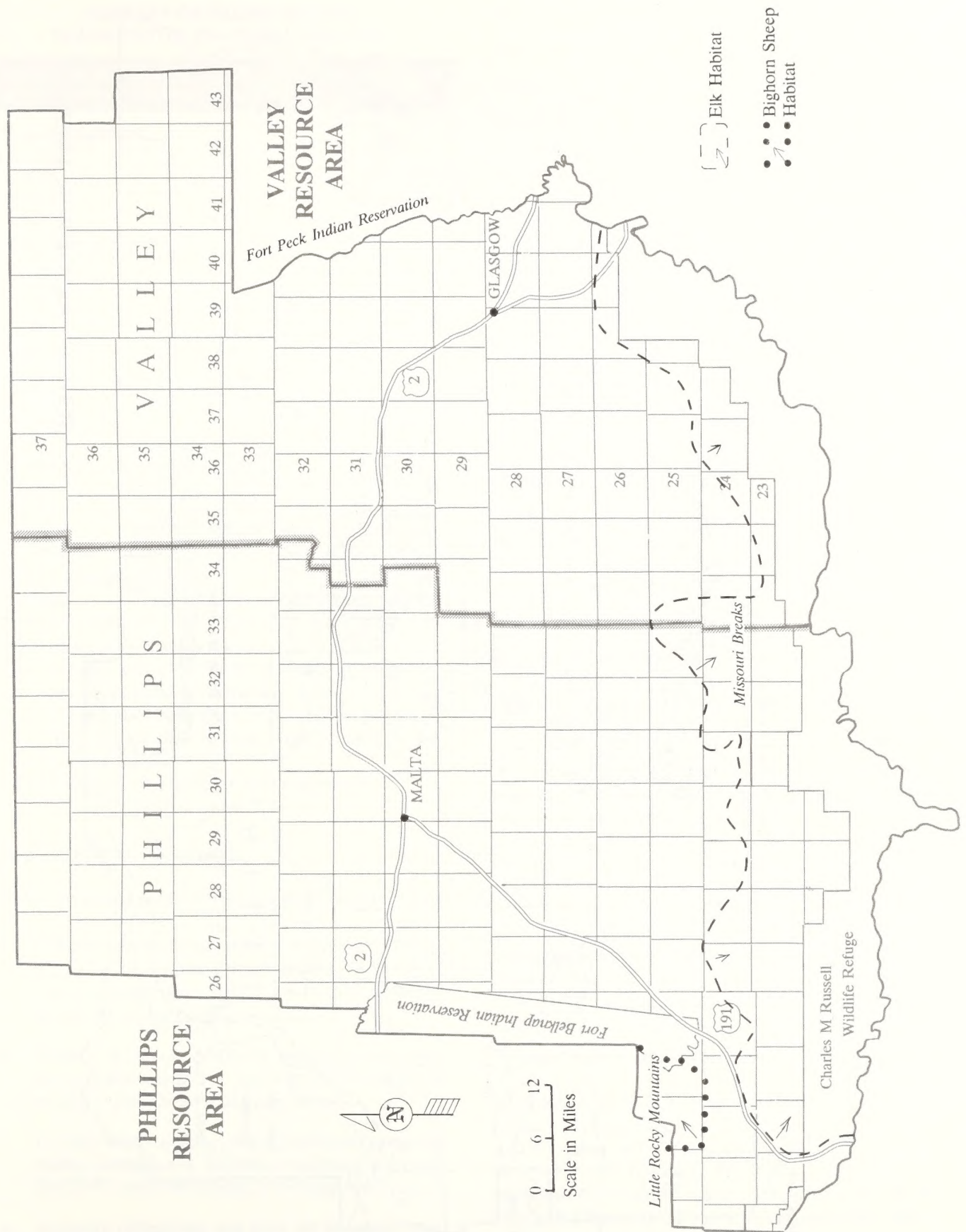
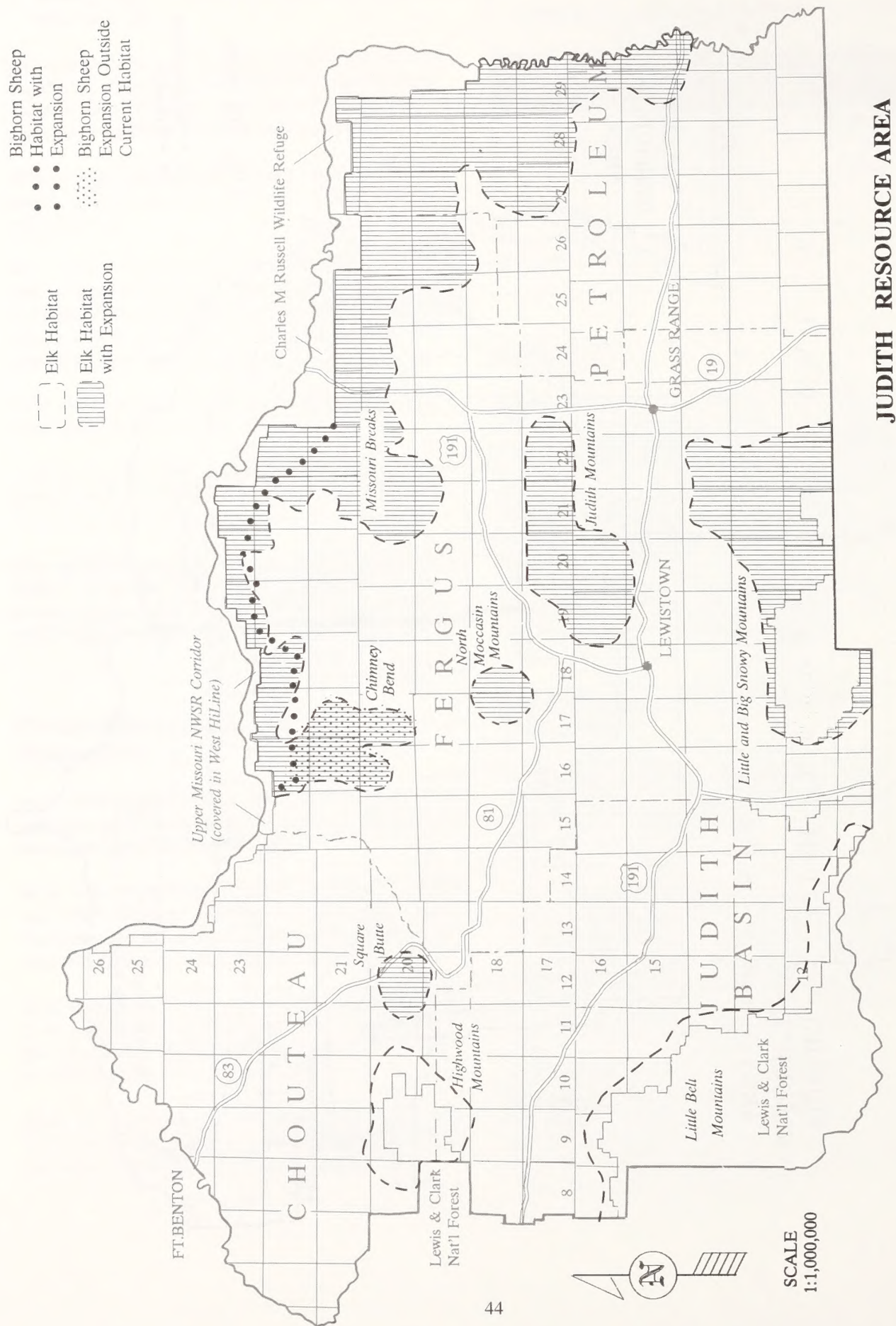


Figure 2.3 Elk and Bighorn Sheep Habitat - Alternatives A & C. (continued)



**TABLE 2.12
ALTERNATIVE A**

**SUMMARY OF PRAIRIE DOG AND
BLACK-FOOTED FERRET MANAGEMENT**

Resource Area & Management	Number of Towns	BLM Acres	State Acres	Private Acres	Total Acres
Prairie Dog Mgmt.					
Judith	0	0	0	0	0
Valley	6	770	0	0	770
Phillips	19	3,308	583	377	4,268
Total	25	4,078	583	377	5,038
Ferret Management*					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	19	3,308	583	377	4,268
Total	19	3,308	583	377	4,268
Shooting					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	0	0	0	0	0
Total	0	0	0	0	0
Elimination					
Judith	7	71	0	112	183
Valley	5	30	40	120	190
Phillips	216	9,912	1,487	5,979	17,378
Total	228	10,013	1,527	6,211	17,751
Planning Area					
Total	253	14,091	2,110	6,588	22,789

*Criteria for selection of a town.

1. No more than 1% of the BLM land in an allotment may be occupied by prairie dog towns.
2. Towns should be as close to the CMR as possible.
3. Towns greater than 50 acres would be managed for associate species.
4. Towns less than 50 acres were eliminated.

Implementation - Elimination

Before poisoning prairie dog towns, BLM would:

1. Complete a damage assessment to determine the nature and extent of resource damage attributable to prairie dogs by identifying changes in condition class, forage availability and soil loss;
2. Prepare or revise AMPs to include prairie dog management objectives and identify management actions to provide for resource recovery;
3. Consult with the grazing permittee and other interested parties (Defenders of Wildlife, Audubon Society and MDFWP) while developing or revising AMPs; and
4. Inventory each prairie dog town for federally listed threatened and endangered species.

BLM would pursue poisoning the entire 10,013 acres of prairie dog towns in one year. Poisoning would continue the following year to completely eliminate the prairie dog towns.

Implementation - Prairie Dog Management

Prairie dog towns identified for management would be maintained within the acreage range shown in Appendix K. The high range is the acreage from a 1988 survey plus 10% and the low range would be the acreage from a 1984 survey.

If these towns are above the maximum acreage, poisoning may be an initial one time application. Monitoring would indicate if and when poisoning would be necessary. Poisoning would be done on a rotational basis to no more than 20% of the prairie dog towns per year.

When a prairie dog town exceeds the maximum acreage, the town would be poisoned to reduce the acreage to within the management prescription. If the acreage drops below the minimum acreage, measures would be taken to increase the prairie dog town back to within the management prescription.

When poisoning is scheduled on a prairie dog town which includes state and private land, a cooperative effort would be made to control the entire town. The cost of applying poison on private or state land would be the responsibility of the private landowner or the state land permittee.

BLM would consider using non-toxic methods for prairie dog control (ie. perch poles, barriers, water, vegetation enhancement, prairie dog sterilization, biological control, etc.).

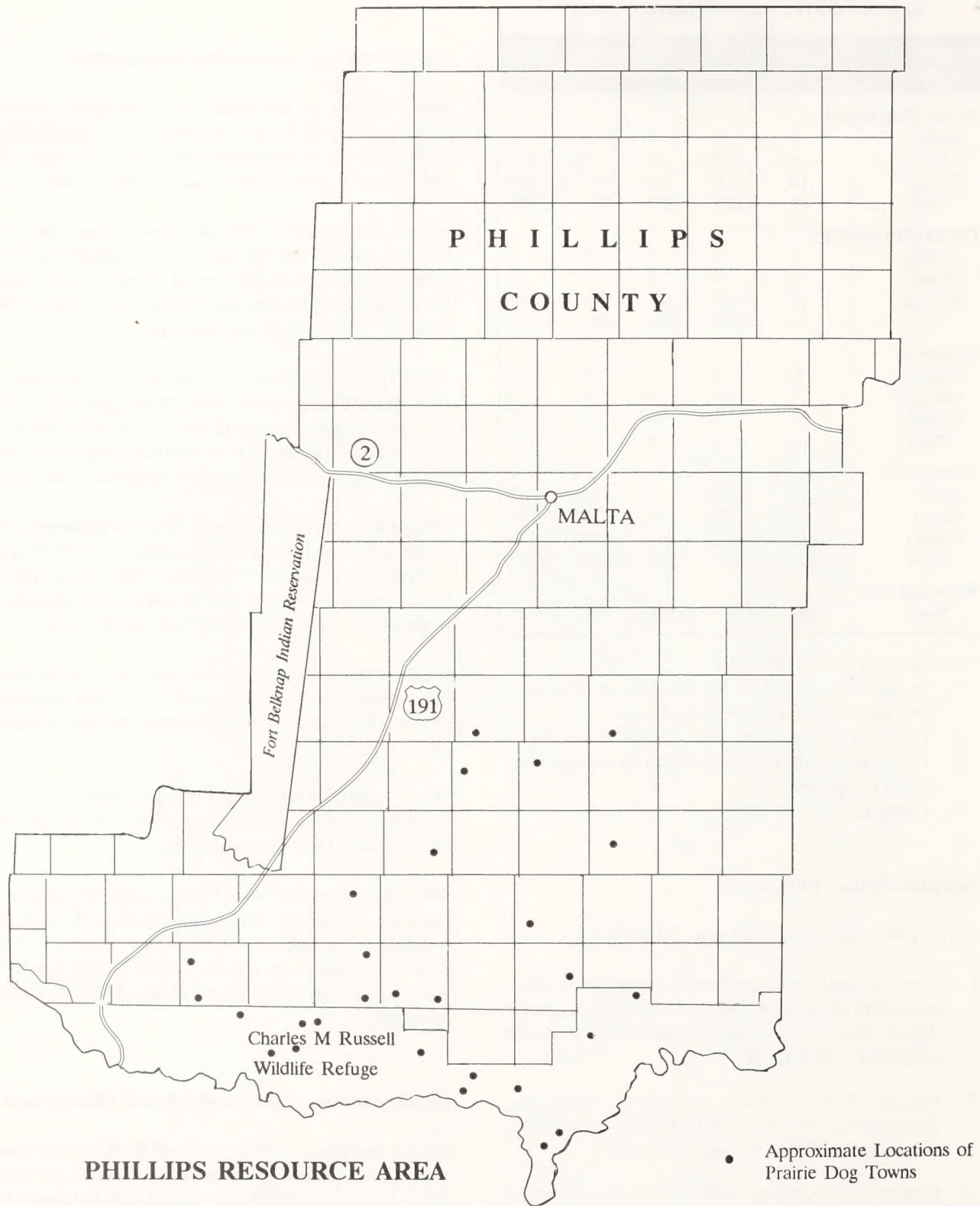
When feasible, BLM would use mechanical treatments elsewhere in an allotment to compensate for the vegetation loss associated with prairie dog towns.

New prairie dog towns would be evaluated for management objectives. If new towns are smaller than 50 acres they would be eliminated. Towns larger than 50 acres would be maintained within an acreage range. Prairie dog towns would not occupy more than 1% of the BLM portion of any allotment.

Implementation - Black-footed Ferret Management

BLM would provide habitat on 3,308 BLM acres for black-footed ferret reintroduction in the Phillips RA (see Figure 2.4). The towns on BLM land would be used to reintroduce isolated ferret families. The towns identified for reintroduction would be based on implementation of the Phillips RA Prairie Dog Control/Management Plan (1982).

Figure 2.4 Prairie Dog Towns/Black-footed Ferret Management - Alternative A.



A core area on CMR and BLM land would be the initial ferret reintroduction site. Before reintroduction occurs, all activities on BLM land in south Phillips County (south of Highway 2) would be evaluated to ensure impacts to a future reintroduction are assessed and mitigated. After reintroduction occurs, all activities which could impact the ferret or its habitat would require formal consultation with the FWS.

Some activities near prairie dog towns identified for black-footed ferret reintroduction would be restricted. These towns would be avoidance areas for above ground ROWs; would have NSO restrictions for oil and gas development; would have no further development or implementation of livestock improvements; and would not be grazed by livestock. When feasible, BLM would use mechanical treatments elsewhere in an allotment to compensate for the vegetation loss associated with these livestock restrictions. These restrictions would apply to these prairie dog towns and a 1/4-mile area around each town. The 3,308 acres of prairie dog towns would include an additional 7,372 acres for a total of 10,680 acres.

Implementation - Prairie Dog Shooting

BLM would not manage shooting prairie dogs on BLM land in the Phillips RA. Prairie dogs would be eliminated on 10,013 BLM acres and shooting would be available on the remaining 3,308 acres until the black-footed ferret is reintroduced. Shooting would be allowed, but not managed in the Valley RA.

Judith Mountains Scenic Area ACEC

BLM would not designate the area an ACEC and current management practices would continue.

Implementation

Special stipulations for protecting the scenic resource would not be implemented.

Acid Shale-Pine Forest ACEC

BLM would not designate the area an ACEC and current management practices would continue.

Implementation

Special stipulations for protecting the endemic plant community would not be implemented.

Square Butte Outstanding Natural Area ACEC

BLM would designate 1,947 BLM acres an ACEC to protect natural endemic systems, cultural resource sites,

scenic qualities, rare geologic features unique to Montana and to identify key wildlife viewing sites under the Watchable Wildlife Program (see Supplemental Color Map A at the conclusion of Chapter 2). Designation of an ACEC only applies to public land administered by BLM.

Implementation

Current management practices and allocations would continue within the Square Butte ONA. The area would remain closed to ORVs and segregated from the mining and leasing laws under the authority of the Classification and Multiple-Use Act of 1964. The area would be managed with no additional stipulations, unless needed on a site specific basis to mitigate impacts to resources.

Collar Gulch ACEC

This area would not be designated an ACEC and current management practices would continue.

Implementation

The Montana Water Quality Act imposes a nondegradation policy for Collar Gulch Creek. Special stipulations for protecting the westslope cutthroat trout population would not be implemented.

Azure Cave ACEC

This area would not be designated an ACEC and current management practices would continue.

Implementation

There would be no admittance to the cave other than for administrative reasons. The gate would remain in place and locked at all times. BLM would continue the withdrawal for Azure Cave to protect public recreation values and the bat hibernaculum. Other stipulations to protect cave resources would not be implemented.

Big Bend of the Milk River ACEC

This area would not be designated an ACEC and current management practices would continue.

Implementation

Special stipulations to protect the area's cultural resources would not be implemented.

ALTERNATIVE B

This alternative would generally provide the maximum opportunity for exploration, development and production of BLM land and resources with minimum restrictions. If selected, this alternative plus the guidance in the Management Common To All Alternatives section would form the RMP.

Land Acquisition and Disposal

BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment under this land use plan. Acquisitions could include private, state or other land that would meet the objectives of the State Director's Guidance on Land Pattern Review and Land Adjustment (1984) (see Appendix A). Private, state and other lands meeting the criteria in Appendix A would be in conformance with this land use plan. The main objective would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability. Lands acquired would have multiple resource values such as access, riparian-wetland areas, ACECs, recreation and wildlife habitat.

A total of 166,021 acres of BLM land would be available for disposal (see Table 2.6 and Appendix A). The lands identified for disposal would be available for exchange. These lands may also be available for sale to facilitate an individual land exchange. For purposes of sale, these lands meet FLPMA disposal criteria Sec. 203(a)(1). BLM land identified for disposal would be subject to further site specific evaluation and if significant values are found they may be retained under BLM management. An environmental analysis and Notice of Realty Action would be completed for each disposal action. Areas not identified for disposal would be managed for long-term public ownership.

Implementation

During any purchase or exchange action, BLM would attempt to maintain the respective county tax base and allow no overall net gain in BLM land over the life of this plan.

As opportunities arise, BLM would evaluate land exchanges involving private and state inholdings within the CMR on a case-by-case basis.

Acquisitions could occur by exchange or purchase through negotiation with willing landowners. Exchange would be the primary method of acquisition and may include BLM land within or outside the planning area.

Access to BLM Land

BLM would not pursue new or additional access to BLM land, but would maintain existing access. BLM would support the public road network, primarily county roads, leading to BLM land by establishing limited cooperative agreements for maintenance with the respective counties.

BLM would concentrate on maintaining roads with legal public access as identified on the Lewistown District Transportation Map, which is available for review at the Lewistown District Office.

Implementation

BLM would enter into limited cooperative maintenance agreements with the appropriate counties to exchange maintenance work for the existing road network and to ensure public safety.

Off-Road Vehicle Designations

BLM would maximize opportunities for ORV use to provide unrestricted cross-country travel and ORV recreation.

ORV use in the six WSAs (Bitter Creek, Burnt Lodge, Antelope Creek, Woodhawk, Dog Creek South and Cow Creek) would be restricted yearlong to the existing roads and trails. In those WSAs Congress determines suitable for wilderness designation, ORV use would be restricted yearlong to cherry-stemmed and boundary roads. All internal trails and ways would be closed to ORV use. Those WSAs Congress determines unsuitable for wilderness designation would be open to ORV use.

The Square Butte ONA ACEC would be closed to all motorized vehicle travel (1,947 acres).

BLM would designate 2,687,570 BLM acres open, 116,640 BLM acres limited and 1,947 BLM acres closed to ORVs (see Table 2.13 and Figure 2.5).

Figure 2.5 ORV Designations - Alternative B.

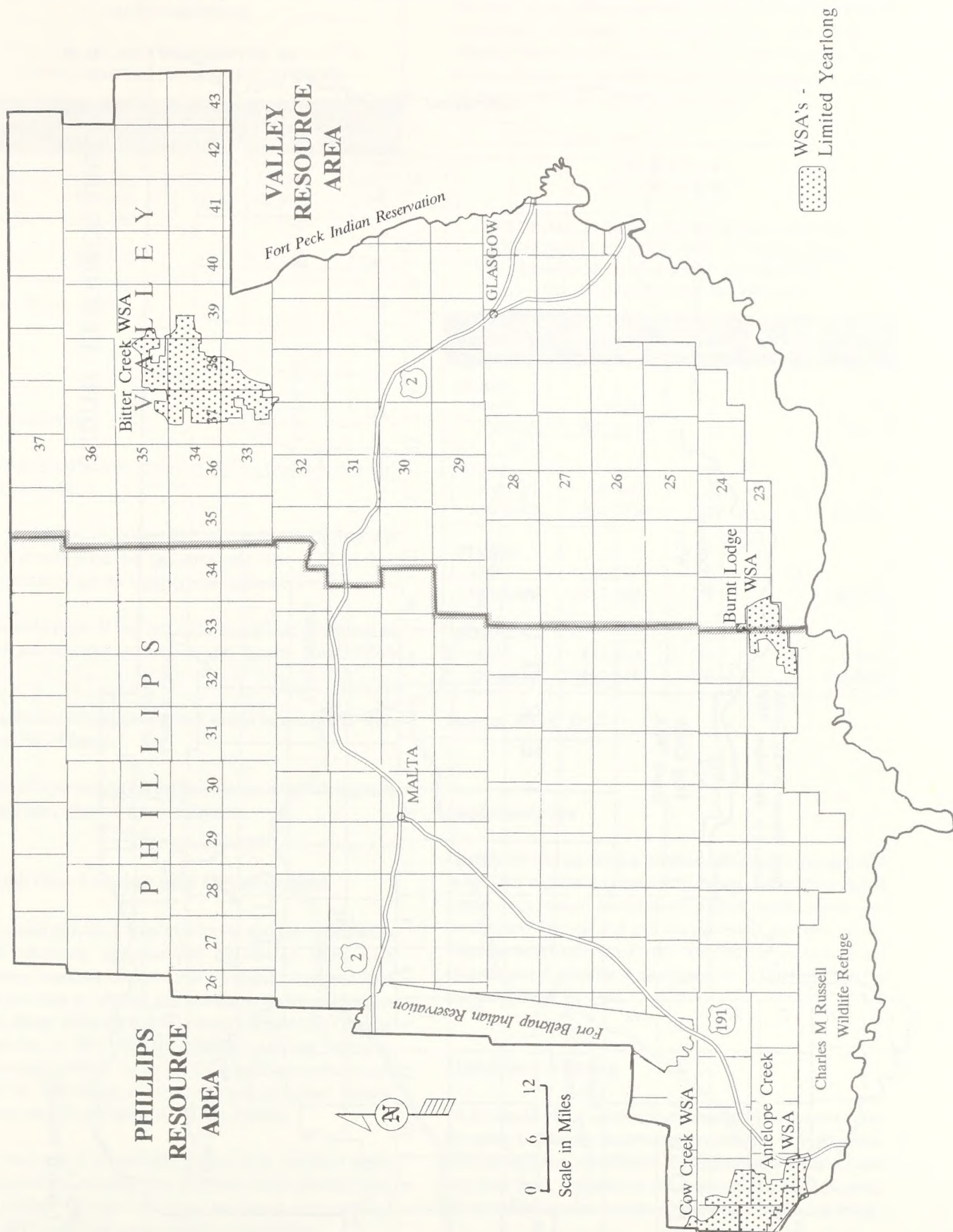


Figure 2.5 ORV Designations - Alternative B. (Continued)

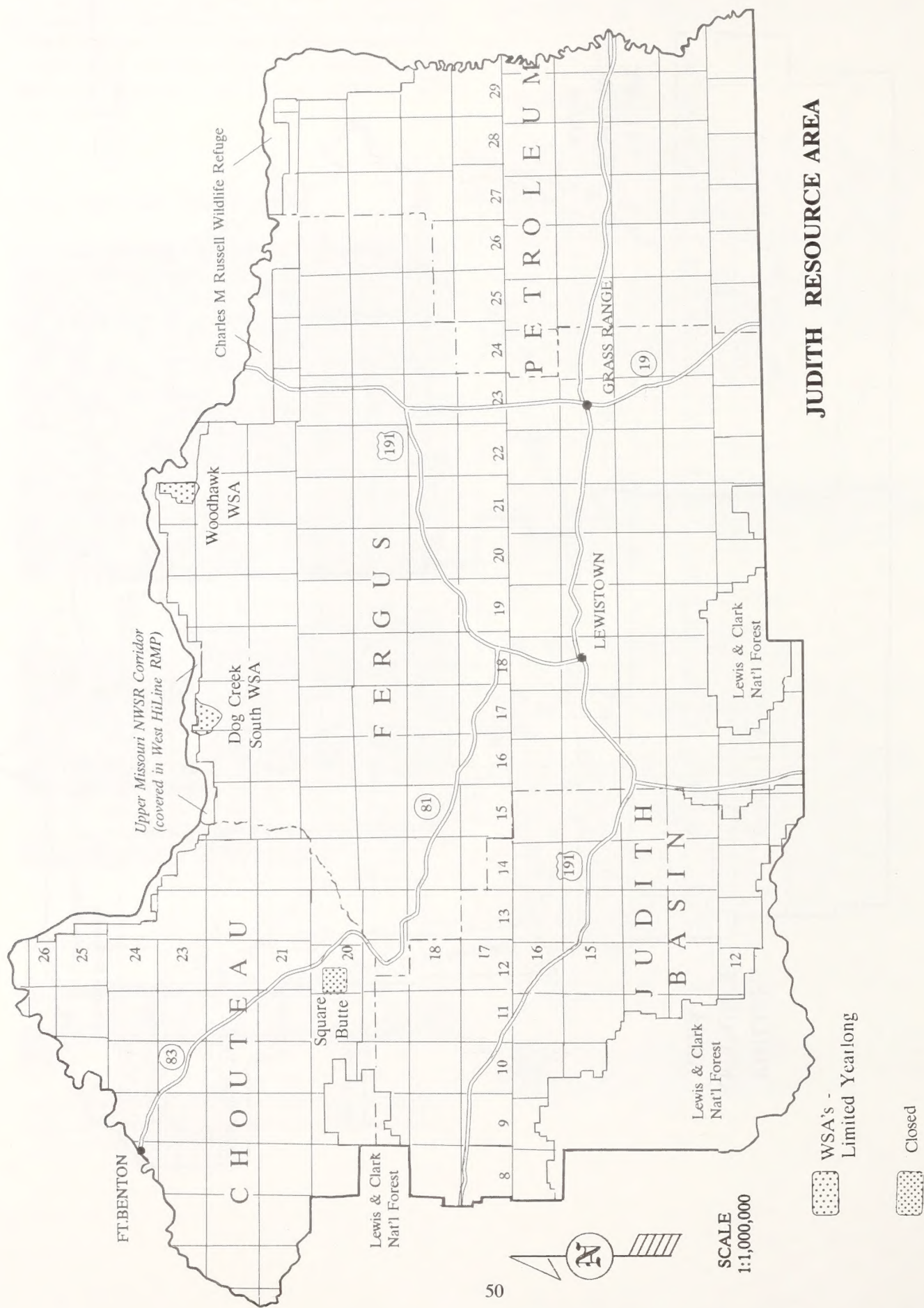


TABLE 2.13 ALTERNATIVE B BLM LAND DESIGNATED AS OPEN, LIMITED, OR CLOSED TO ORVS				
Resource Area	Open	Limited Seasonal	Limited Yearlong	Closed
Judith Valley	686,384	0	13,250	1,947
Phillips	953,996	0	65,890	0
	1,047,190	0	37,500	0
Total	2,687,570	0	116,640	1,947

Source: BLM, 1990

Implementation

The designated access routes in WSAs (roads and trails) would be signed.

BLM would pursue cooperative agreements with state and local law enforcement agencies and use a BLM law enforcement ranger to monitor and implement restrictions.

BLM would provide barriers and signs where necessary to protect the resource values in the Square Butte ONA ACEC.

ORV use on newly acquired land would be consistent with adjacent BLM lands.

The three implementation actions discussed in Alternative A would also apply to this alternative.

Oil and Gas Leasing and Development

BLM would provide for maximum oil and gas exploration and development opportunities by leasing lands with minimum lease stipulations. All BLM-administered land would be open to oil and gas leasing without restrictions beyond those in the Federal Onshore Oil and Gas Leasing Reform Act of 1987, BLM regulations, existing Notice to Lessees and Onshore Orders. This would not include land closed by legislation or administered by other federal agencies which preclude oil and gas leasing.

BLM land which is currently leased with standard terms and stipulations, ranging from seasonal wildlife restrictions to No Surface Occupancy, would be leased with standard terms and conditions, as provided by regulation.

WSAs would remain closed to oil and gas leasing.

Table 2.14 shows the BLM acreage that would be subject to standard lease terms, stipulations, No Surface Occupancy restrictions or closed to leasing in high and moderate mineral development potential areas. There are no areas of low development potential within the planning area, except FS land in the Little Belt Mountains.

TABLE 2.14 ALTERNATIVE B FEDERAL MINERAL ESTATE SUBJECT TO STANDARD LEASE TERMS, STIPULATIONS, NO SURFACE OCCUPANCY OR CLOSED TO OIL AND GAS LEASING (Acres)				
Resource Area & Potential	Standard Terms Only	Stipulations	No Surface Occupancy	Closed
Judith				
High	18,490	0	0	5,150
Moderate	833,904	0	0	10,047
Valley				
High	67,840	0	0	0
Moderate	1,000,279	0	0	66,525
Phillips				
High	330,880	0	0	0
Moderate	1,018,332	0	0	36,240
TOTAL				
High	417,210	0	0	5,150
Moderate	2,852,515	0	0	112,812

Source: BLM, 1990

Implementation

Current oil and gas leases would continue according to the respective stipulations until they expire. As existing leases expire they would be reissued with standard terms and conditions. The oil and gas management guidance in the Management Common To All Alternatives section of this chapter and Appendix B describes the oil and gas leasing and permitting process.

Hardrock Mining

BLM would allow hardrock exploration and development by using minimum constraints on mineral activity while still maintaining compliance with mandatory federal, state and local laws, regulations and requirements. The majority of the planning area would remain open to mineral entry.

BLM would continue the withdrawal for the Blacktail Fossil Site, 320 acres in the Judith RA. BLM would

recommend revoking the Judith Peak and Red Mountain Radar Sites, Azure Cave, Montana Gulch Campground, Camp Creek Campground, Landusky Town Site, Landusky Recreation Site, and the Zortman Town Site withdrawals. There are suspended mining claims within the Judith Peak and Red Mountain Radar Sites that may be validated when the revocation is finalized and will be treated as prior existing rights.

The Square Butte ONA is currently segregated from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964. BLM would terminate the classification and open the area to mineral entry.

Implementation

The hardrock management guidance in the Management Common To All Alternatives section of this chapter and Appendix C describes the program for surface management of hardrock mineral exploration and development.

Riparian and Wetland Management of Watersheds

BLM would maintain and/or improve the riparian-wetland areas in existing AMPs based on proper functioning condition and desired plant community (see Appendix J). Ranking would be based on potential as determined by intensive inventories in the Prairie Potholes and Northern Great Plains Regions. It may be necessary to recategorize Category M and C allotments if significant riparian or wetland values are present and need improvement.

The objective would be to improve or maintain riparian-wetland areas to proper functioning condition, to provide wildlife habitat and to comply with the nonpoint source water pollution section of the Clean Water Act.

Riparian-wetland condition objectives would be included in all new AMPs. When existing AMPs are reviewed, those lacking riparian-wetland objectives would be revised to include appropriate management objectives.

BLM would allocate 50% of any forage increases in riparian-wetland areas to watershed and wildlife and 50% to livestock.

Table 2.15 shows the number of allotments, miles of stream and number of water sources on BLM land. The number of water sources is based on the reservoirs, potholes and springs with water rights. Intensive riparian-wetland inventories would update this information through plan maintenance.

**TABLE 2.15
ALTERNATIVE B**

**NUMBER OF ALLOTMENTS, MILES OF STREAM
AND NUMBER OF WATER SOURCES WITHIN
ALLOTMENTS MANAGED FOR RIPARIAN AND
WETLAND VALUES**

Resource Area	Number of Allotments	BLM Land	
		Miles of Stream	Water Sources
Judith Valley	49	49	227
Phillips	61	220	1,143
	82	99	2,110
Total	192	368	3,480

Source: BLM, 1990

Implementation

BLM would use livestock grazing methods to meet riparian objectives and manage the floodplain associated with streams to achieve the desired plant community. This includes, but is not limited to:

1. Hot season grazing deferment,
2. Creation of separate riparian pastures,
3. Changes in kind and class of livestock,
4. Time control grazing, and
5. Other range management practices such as development of off-site water, salting, development of shade sources, herding, insect control, early pastures of crested wheatgrass, etc.

BLM would rehabilitate degraded riparian areas by seeding, planting and installing structures such as rock gabions, check dams, etc.

BLM would construct water impoundments on suitable sites as opportunities arise. Islands would be constructed on new and existing impoundments where feasible. An evaluation for soils and hydrologic characteristics would determine which proposed sites are suitable.

All proposed vegetation manipulation projects would be evaluated to determine their impacts on wildlife.

BLM would include mitigation measures for surface disturbing activities to protect wetland habitat.

BLM would implement grazing methods on degraded wetlands to improve vegetation, while maintaining current AUM allocations. These methods could include hot season deferment, fencing, creating riparian pastures, early use pastures of crested wheatgrass, etc.

Some newly constructed water impoundments would be limited to 2-acre feet in volume or would be built with water pass-through facilities as required by the Milk River MOU with the BR.

Elk and Bighorn Sheep Habitat Management

BLM would provide 593,980 acres of habitat to support elk populations on BLM land within the Missouri Breaks, Highwood Mountains, Square Butte, Little Belt Mountains, Judith Mountains, North Moccasin Mountains, and Little and Big Snowy Mountains (see Table 2.16 and Figure 2.6).

BLM would also provide 66,788 acres of habitat for bighorn sheep in the Little Rocky Mountains and Missouri Breaks (see Table 2.16 and Figure 2.6).

TABLE 2.16 ALTERNATIVE B ACRES OF ELK AND BIGHORN SHEEP HABITAT ON BLM LAND		
Resource Area	Elk Habitat	Bighorn Sheep Habitat
Judith	410,796	48,264
Valley	50,806	0
Phillips	132,378	18,524
Total	593,980	66,788

Source: BLM, 1990

Implementation

Adjustments in wildlife forage allocations would be made if monitoring indicates changes are needed to meet management objectives. These allocations would include other uses such as riparian, watershed or livestock grazing.

Standard terms would be placed on oil and gas activities to protect crucial elk and bighorn sheep habitat.

Prairie Dog and Black-Footed Ferret Management

BLM would provide 6,462 acres of prairie dog towns on BLM land in the Phillips RA (Complex 1) for the potential

reintroduction of the black-footed ferret, associate species (mountain plover, burrowing owl and ferruginous hawk), recreational viewing and prairie dog shooting. This acreage would be designated an ACEC.

BLM would provide 770 acres of prairie dog towns in the Valley RA for associate species and recreational viewing. Prairie dog towns would not occupy more than 1% of the BLM portion of any allotment in the Valley RA.

BLM would poison prairie dog towns on 6,859 BLM acres to stabilize the watershed and improve range condition. All prairie dog towns in the Judith RA would be eliminated. Appendix K discusses the prairie dog towns identified for elimination by allotment and resource area.

Table 2.17 summarizes the prairie dog and black-footed ferret management activities and acreages in this alternative. Prairie dog towns would be maintained within an acreage range as shown in Appendix K.

TABLE 2.17 ALTERNATIVE B SUMMARY OF PRAIRIE DOG AND BLACK-FOOTED FERRET MANAGEMENT					
Resource Area & Management	Number of Towns	BLM Acres	State Acres	Private Acres	Total Acres
Prairie Dog Mgmt.					
Judith	0	0	0	0	0
Valley	6	770	0	0	770
Phillips	0	0	0	0	0
Total	6	770	0	0	770
Ferret Management					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	40	6,462	477	818	7,757
Total	40	6,462	477	818	7,757
Shooting					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	0	0	0	0	0
Total	0	0	0	0	0
Elimination					
Judith	7	71	0	112	183
Valley	5	30	40	120	190
Phillips	195	6,758	1,593	5,538	13,889
Total	207	6,859	1,633	5,770	14,262
Planning Area					
Total	253	14,091	2,110	6,588	22,789

Source: BLM, 1990

Figure 2.6 Elk and Bighorn Sheep Habitat - Alternative B.

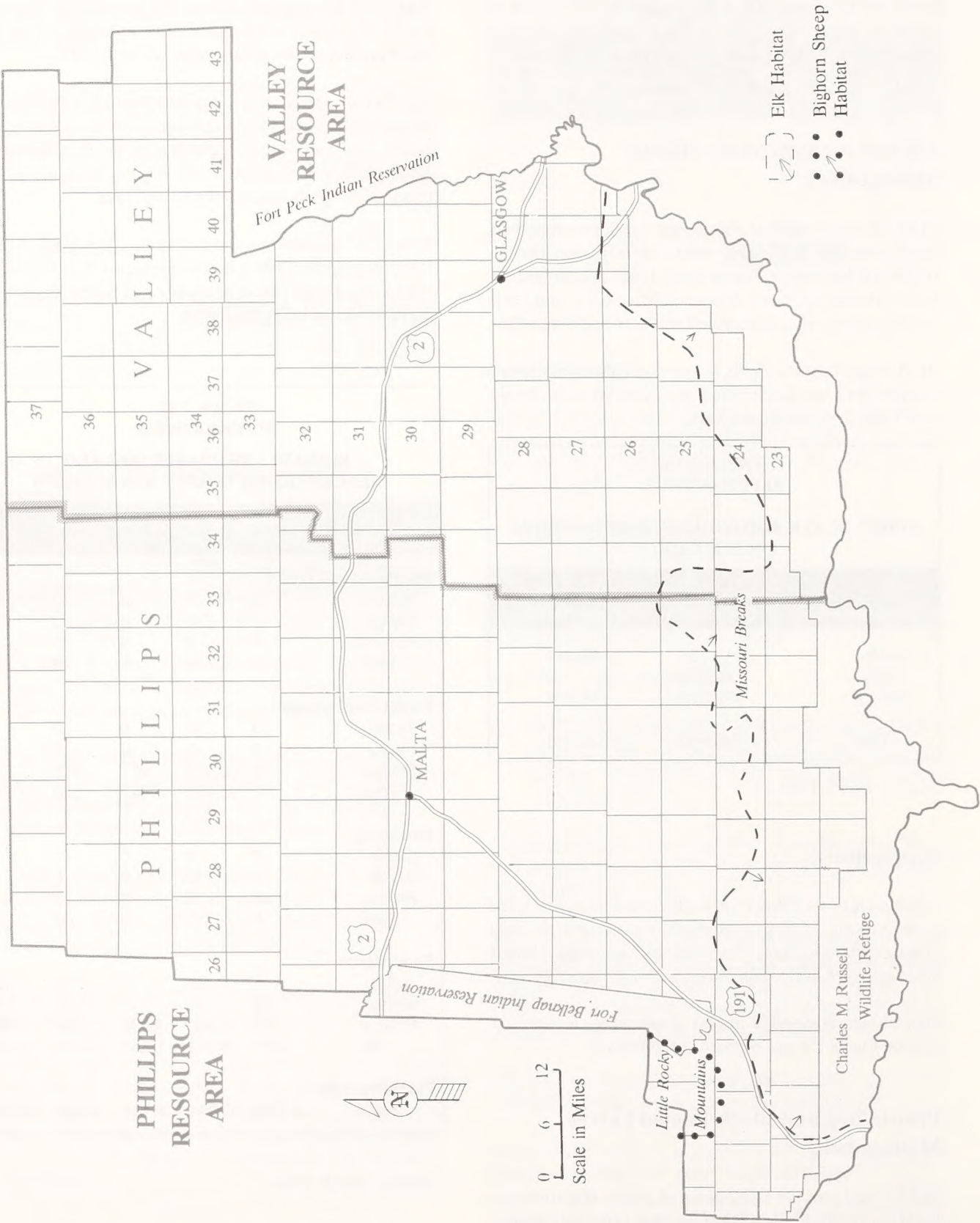
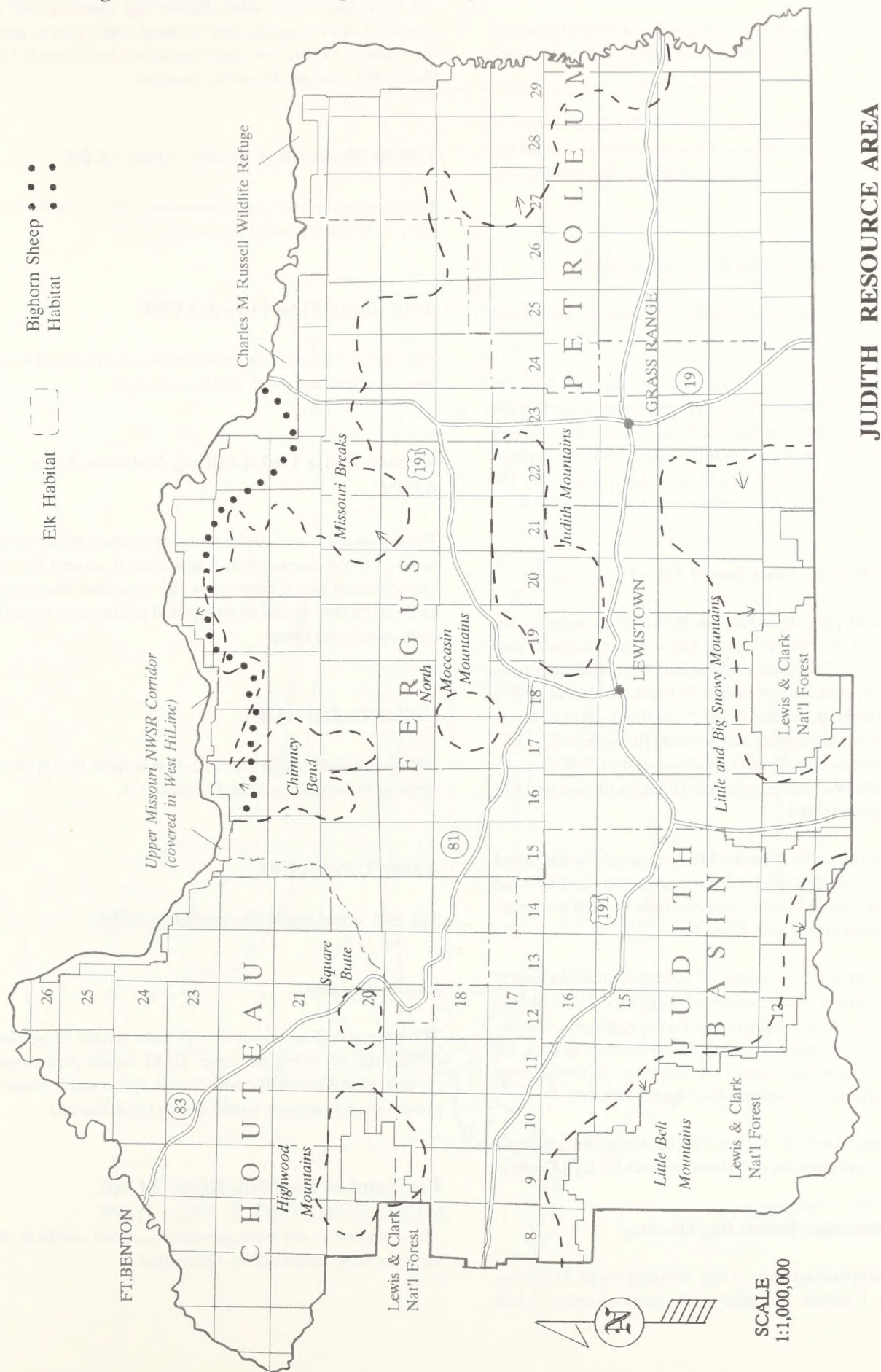


Figure 2.6 Elk and Bighorn Sheep Habitat - Alternative B. (continued)



Implementation - Elimination

Before poisoning prairie dog towns, BLM would inventory each town for federally listed threatened and endangered species.

BLM would pursue poisoning the entire 6,859 acres of prairie dog towns in one year. Poisoning would continue the following year to completely eliminate the prairie dog towns.

Implementation - Prairie Dog Management

These implementation actions would be the same as those discussed in Alternative A.

In addition, new prairie dog towns in the Phillips RA would be eliminated. New prairie dog towns smaller than 50 acres would be eliminated in the Judith and Valley RA. Towns larger than 50 acres would be maintained within an acreage range. Prairie dog towns would not occupy more than 1% of the BLM portion of any allotment in the Valley RA.

Implementation - Black-footed Ferret

BLM would provide habitat on 6,462 BLM acres in the Phillips RA for black-footed ferret reintroduction (see Figure 2.7). The towns identified for reintroduction, Complex 1, are based on a paper by Clark and Minta (1988) using the Habitat Suitability Index for Black-footed Ferrets for prairie dog complexes in Montana (Houston et al, 1986). Reintroduction could include portions of the CMR and may also include prairie dog towns on 477 acres of state and 818 acres of private land.

A core area(s) on BLM and CMR land would be the initial ferret reintroduction site(s). Prairie dog towns on BLM and CMR land outside the core area(s) would be used to expand the reintroduction within Complex 1.

Before reintroduction occurs, all activities on BLM land in south Phillips County (south of Highway 2) would be evaluated to ensure impacts to a future reintroduction are assessed and mitigated. After reintroduction occurs, all activities which may impact the ferret or its habitat, may require informal consultation with the FWS.

All activities would be allowed, except the willful taking of the ferret or destroying its habitat in south Phillips County.

Implementation - Prairie Dog Shooting

BLM would manage prairie dog shooting on BLM land in Complex 1 before and after ferret reintroduction. BLM

would respond to requests for information, prepare maps and sign prairie dog towns. Prairie dog shooting may be restricted to a certain number of people each year to allow for a quality experience. Shooting would be allowed in the Valley RA, but would not be managed.

Judith Mountains Scenic Area ACEC

The designation and implementation actions would be the same as those discussed in Alternative A.

Acid Shale-Pine Forest ACEC

The designation and implementation actions would be the same as those discussed in Alternative A.

Square Butte Outstanding Natural Area ACEC

The designation and implementation actions would be the same as those discussed in Alternative A, except that the classification which segregates the area from the mining and leasing laws would be terminated and the area would be open to mineral entry.

Collar Gulch ACEC

The designation and implementation actions would be the same as those discussed in Alternative A.

Azure Cave ACEC

The area would not be designated an ACEC.

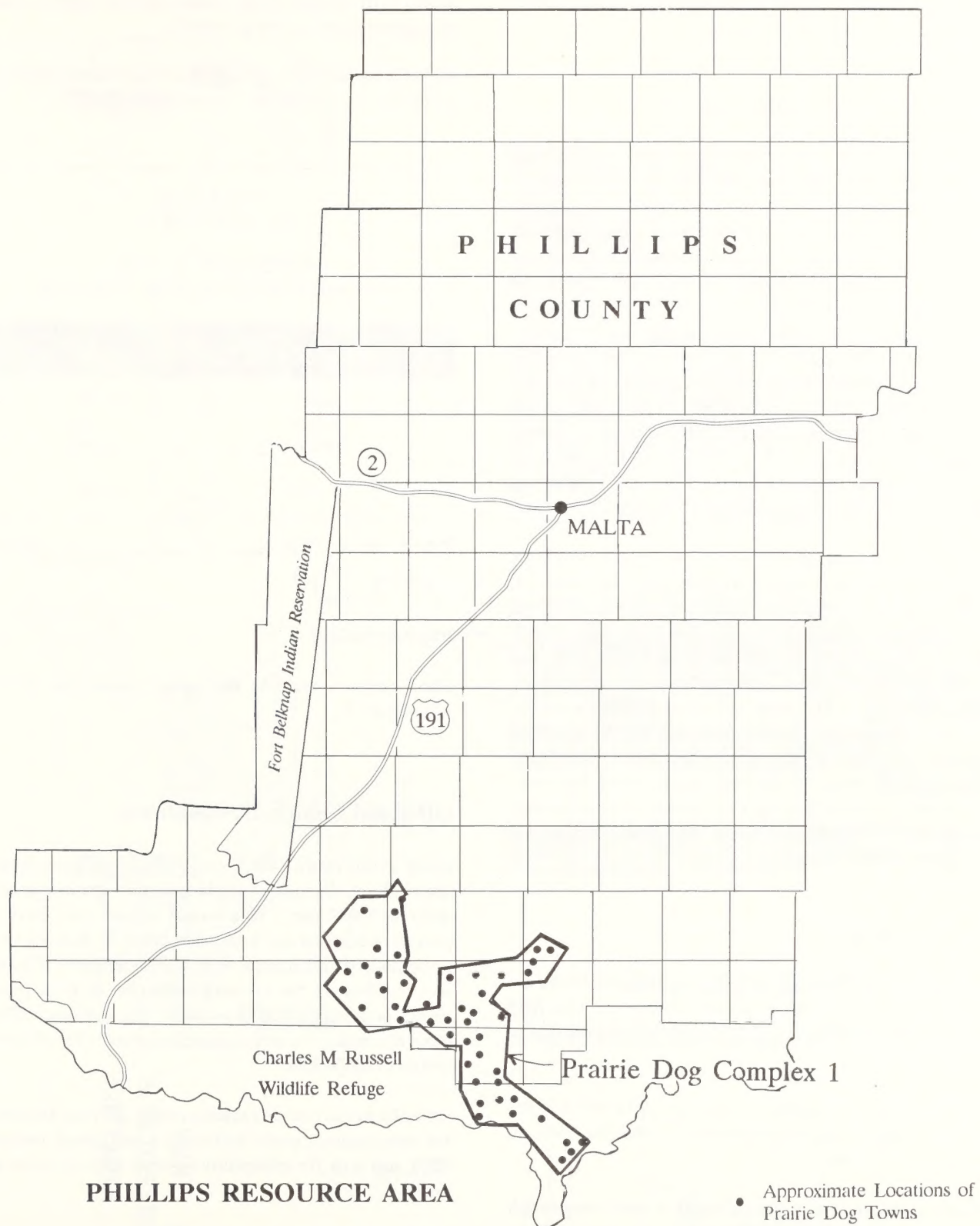
Implementation

The gate would be removed and there would be no time restrictions on using the cave. BLM would recommend revoking the Azure Cave withdrawal. Other stipulations to protect cave resources would not be implemented.

Big Bend of the Milk River ACEC

The designation and implementation actions would be the same as those discussed in Alternative A.

Figure 2.7 Prairie Dog Towns/Black-footed Ferret Management - Alternative B.



ALTERNATIVE C

This alternative represents an intermediate course between natural resource production and protection. It provides for balanced consumptive and nonconsumptive uses of public land resources in the planning area.

Land Acquisition and Disposal

BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment under this land use plan. Acquisitions could include private, state or other land that would meet the objectives of the State Director's Guidance on Land Pattern Review and Land Adjustment (1984) (see Appendix A). Private, state and other lands meeting the criteria in Appendix A would be in conformance with this land use plan. The main objective would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability. Lands acquired would have multiple resource values such as access, riparian-wetland areas, ACECs, recreation and wildlife habitat.

A total of 166,021 acres of BLM land would be available for disposal to meet the acquisition objectives (see Table 2.6 and Appendix A). The lands identified for disposal would be available for exchange. These lands may also be available for sale to facilitate an individual land exchange. For purposes of sale, these lands meet FLPMA disposal criteria Sec. 203(a)(1). BLM land identified for disposal would be subject to further site specific evaluation and if significant values are found they may be retained under BLM management. An environmental analysis and Notice of Realty Action would be completed for each disposal action. Areas not identified for disposal would be managed for long-term public ownership.

Implementation

During any purchase or exchange action, BLM would attempt to maintain the respective county tax base and allow no overall net gain in BLM land over the life of this plan.

As opportunities arise, BLM would evaluate land exchanges involving private and state inholdings within the CMR on a case-by-case basis.

Acquisitions could occur by exchange or purchase through negotiation with willing landowners. Exchange would be the primary method of acquisition and may include BLM land within or outside the planning area.

Access to BLM Land

Access would be pursued to BLM land where no legal public access exists. This includes preserving and improving access to BLM land. Access would provide improved land management and use by the public.

BLM has identified 71,793 BLM acres as needing new legal public access (see Table 2.18 and Appendix L).

**TABLE 2.18
ALTERNATIVE C
ACRES OF BLM LAND
NEEDING NEW LEGAL PUBLIC ACCESS**

Resource Area	Acres
Judith	67,740
Valley	13
Phillips	4,040
Total	71,793

Source: BLM, 1990

Implementation

These actions would be the same as those described in Alternative A.

Off-Road Vehicle Designations

BLM would restrict ORV use on BLM land yearlong or seasonally to designated roads and trails or close specific areas to ORV use. This would reduce user conflicts, provide watershed and vegetative cover by limiting travel on ridges, reduce harassment of wildlife and provide habitat security, protect the resource values in ACECs, protect habitat on core prairie dog towns for potential black-footed ferret reintroduction and preserve and protect the wilderness values in the WSAs.

Other BLM land would remain open to ORV use to provide for cross-country travel including a designated intensive ORV use area for competitive events such as races and rallies.

BLM would designate 1,818,437 BLM acres open, 983,915 BLM acres limited and 3,805 BLM acres closed to ORVs (see Table 2.19 and Figure 2.8).

Figure 2.8 ORV Designations - Alternative C.

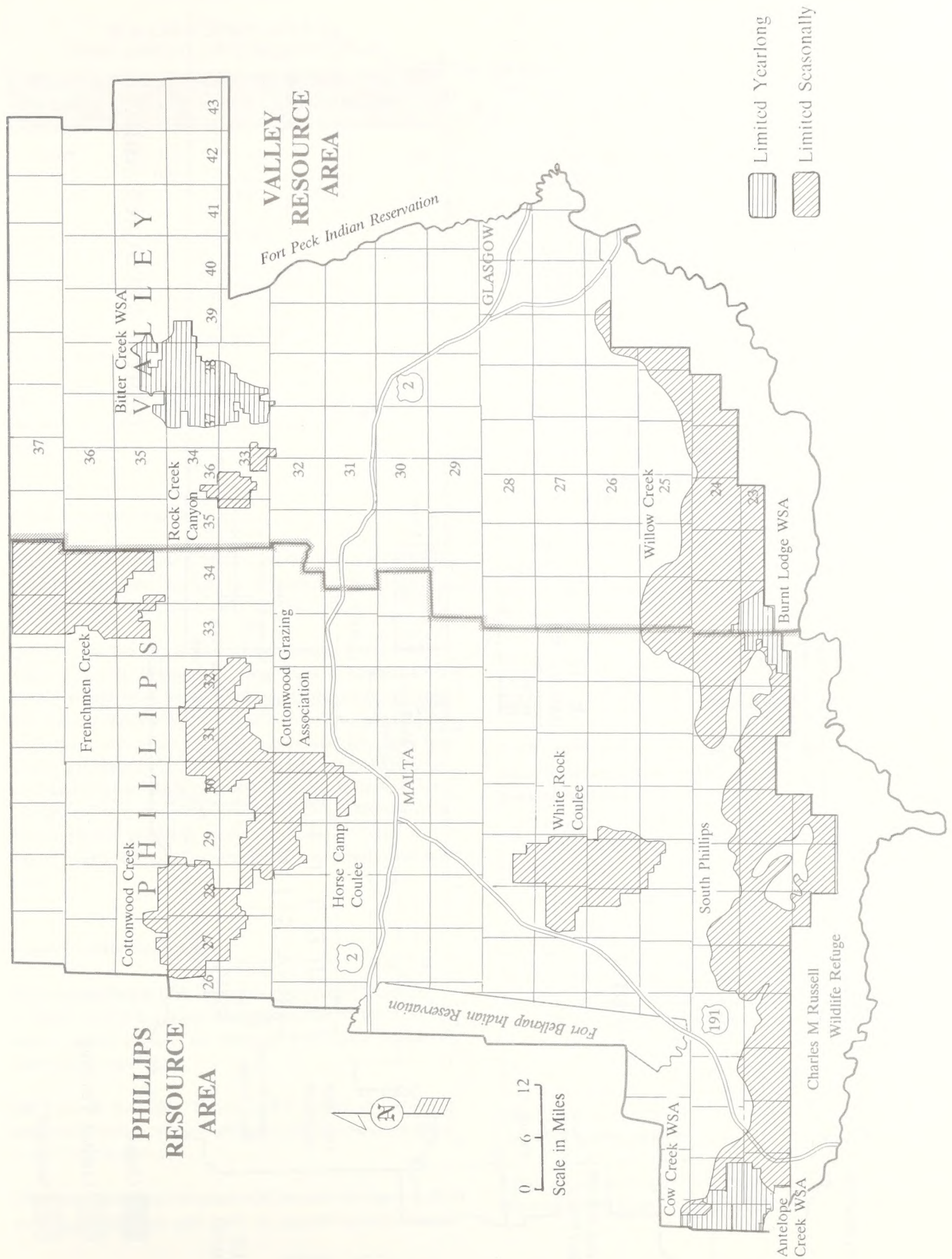
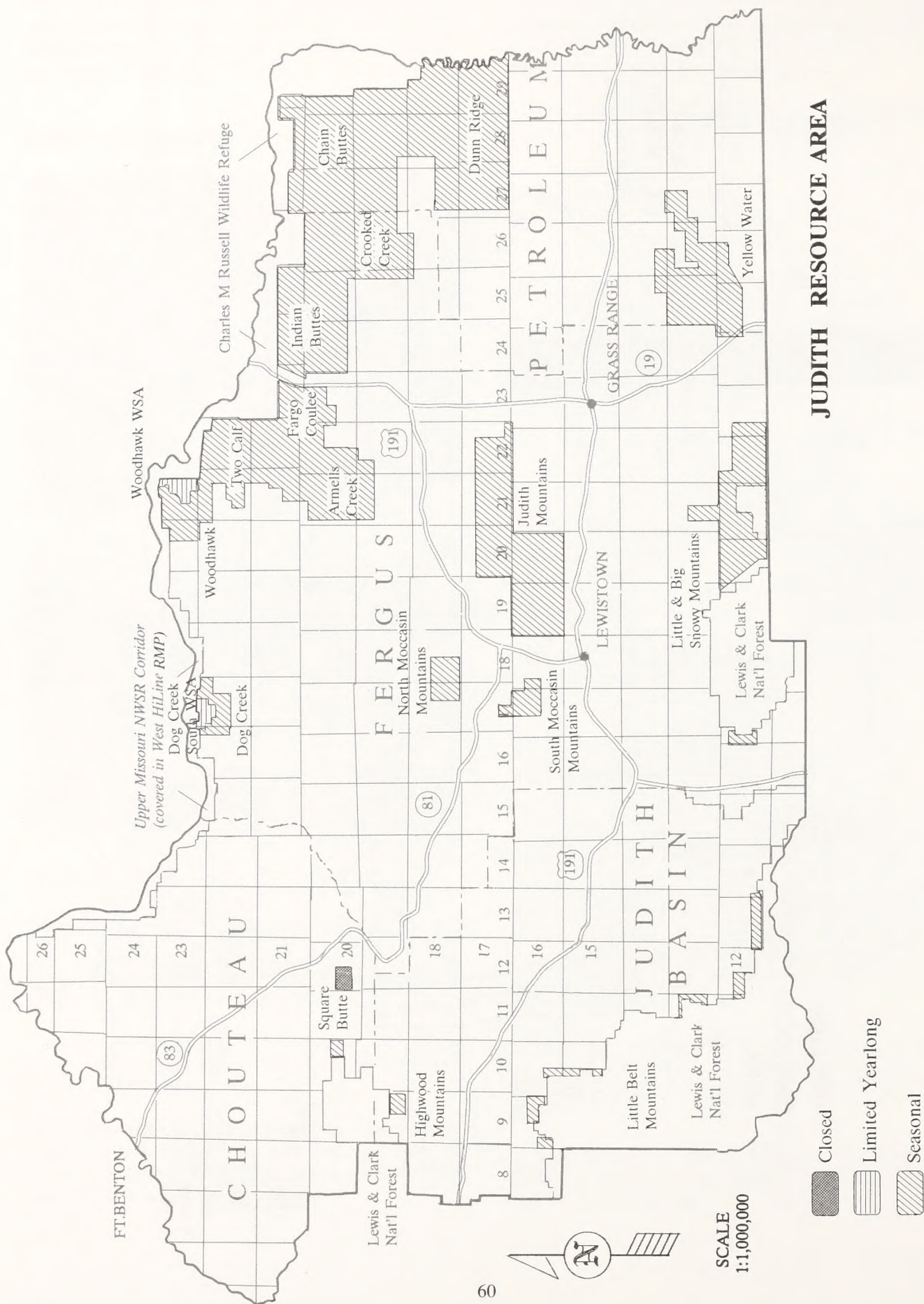


Figure 2.8 ORV Designations - Alternative C. (Continued)



**TABLE 2.19
ALTERNATIVE C**

**BLM LAND DESIGNATED AS
OPEN, LIMITED, OR CLOSED TO ORVS**

Resource Area	Open	Limited Seasonal	Limited Yearlong	Closed
Judith Valley	344,374	337,444	17,816	1,947
Phillips	777,896	176,100	65,890	0
	696,167	349,165	37,500	1,858
Total	1,818,437	862,709	121,206	3,805

Source: BLM, 1990

Areas Closed

The Square Butte ONA ACEC and four prairie dog towns in the Phillips RA would be closed to all motorized vehicle use (3,805 acres).

Areas Limited Yearlong

ORV use in the Judith Mountains Scenic Area ACEC would be restricted yearlong to designated roads and trails to protect the visual resources (4,566 acres).

ORV use in the six WSAs (Bitter Creek, Burnt Lodge, Antelope Creek, Woodhawk, Dog Creek South and Cow Creek) would be restricted yearlong to the existing roads and trails. In those WSAs Congress determines suitable for wilderness designation, ORV use would be restricted yearlong to cherry-stemmed and boundary roads. All internal trails and ways would be closed to ORV use. In those WSAs Congress determines unsuitable, ORV designations would remain limited yearlong, except for the Bitter Creek WSA which would be limited seasonally to designated roads and trails.

Areas Limited Seasonally

The seasonal restriction, September 1 through December 1, is based on the big game hunting season. If the hunting season would change, the seasonal restriction would be modified accordingly.

ORV use in the Collar Gulch ACEC would be restricted seasonally to designated roads and trails to protect resource values (1,160 acres).

The Rock Creek Canyon area would be restricted seasonally to designated roads and trails to provide nonmotorized

recreation opportunities, wildlife habitat security and to protect the watershed's vegetative cover (14,100 acres).

BLM land in Cottonwood Grazing Association, Horse Camp Coulee, White Rock Coulee, Cottonwood Creek and Black Coulee, Frenchman Creek, Judith Mountains, Chain Buttes, Indian Buttes, Dunn Ridge, Two Calf, Armells Creek, Fargo Coulee, Crooked Creek, Blacktail, Woodhawk, Dog Creek, Yellow Water, Highwood Mountains, Little Belt Mountains, Snowy Mountains, North and South Moccasin Mountains, and Willow Creek would be restricted seasonally to protect fragile soils, reduce user conflicts, and maintain and improve water quality (687,127 acres).

ORV use in the south Phillips area would be restricted seasonally to designated roads and trails to protect fragile soils (160,322 acres).

Implementation

The guide for rating soil impacts from off-road travel would be used as an indicator to revise restrictions (MSO supplement to 7162 BLM Manual-Soil Interpretations).

BLM would implement a signing and public outreach program and publish an ORV map that delineates the boundaries and travel restrictions. Limited areas would be signed with an explanation of allowed uses. The designated access routes (roads and trails) would be signed in the WSAs.

BLM would pursue cooperative agreements with state and local law enforcement agencies and use a BLM law enforcement ranger to monitor and implement restrictions.

ORV regulations would provide permission for administrative access for lessees (grazing, oil and gas, mineral or other).

ORV use on newly acquired land would be consistent with adjacent areas.

Intensive ORV Use Area

BLM would designate and manage a 40 acre intensive ORV use area north of Glasgow for motorcycles and ATVs (T. 29 N., R. 39 E., Section 34, NE1/4SE1/4).

The actions needed for implementation would include a map and brochure of the intensive use area, signing, fencing, monitoring and enforcement. Competitive events would require a commercial permit.

Other areas for intensive ORV use would be designated if the need arises based on public demand.

Oil and Gas Leasing and Development

BLM would protect surface resource values on BLM lands open to oil and gas leasing. The leases on BLM land available for oil and gas exploration and development would contain protective surface use stipulations. Lands would be open to leasing with stipulations consistent with those used in other Montana BLM jurisdictional land outside the planning area. The stipulations along with the waivers, modifications and exceptions are described in Appendix B.

WSAs would remain closed to oil and gas leasing. All the remaining BLM land would be open to oil and gas leasing.

No Surface Occupancy restrictions would be used to protect critical paleontological sites, archaeological sites and various wildlife species.

Seasonal or distance restrictions would also be applied to oil and gas activities to protect raptor and grouse nests and critical winter habitat for various wildlife species.

Table 2.20 shows the acreage that would be subject to standard lease terms, stipulations, No Surface Occupancy restrictions or closed to leasing in high and moderate mineral development potential areas. There are no areas of low development potential within the planning area, except FS land in the Little Belt Mountains.

**TABLE 2.20
ALTERNATIVE C**

**FEDERAL MINERAL ESTATE SUBJECT TO
STANDARD LEASE TERMS, STIPULATIONS, NO
SURFACE OCCUPANCY OR CLOSED TO OIL AND
GAS LEASING (Acres)**

Resource Area & Potential	Standard Terms Only	Stipulations*	No Surface Occupancy*	Closed
Judith				
High	8,795	9,600	95	5,150
Moderate	138,573	689,081	6,250	10,047
Valley				
High	28,324	38,996	520	0
Moderate	75,277	904,922	20,080	66,525
Phillips				
High	65,747	257,096	8,037	0
Moderate	124,779	782,653	91,060	56,080
Total				
High	102,866	305,692	8,652	5,150
Moderate	338,629	2,376,656	117,390	132,652

*Standard lease terms would also apply to the acreage identified for stipulations and No Surface Occupancy.

Source: BLM, 1990

Implementation

Current leases would continue according to the respective stipulations until they expire. As these leases expire, the land open to oil and gas leasing would be re-leased with stipulations, No Surface Occupancy restrictions or standard terms and conditions. The oil and gas management guidance in the Management Common To All Alternatives section of this chapter and Appendix B describes the oil and gas leasing and permitting process.

Hardrock Mining

BLM would provide for hardrock mineral resource development while protecting other resources of exceptional value with special management prescriptions.

BLM would recommend revoking the withdrawals for the Judith Peak and Red Mountain Radar Sites, Landusky Town Site, Landusky Recreation Site, Montana Gulch Campground, and the Zortman Town Site. There are suspended mining claims within the Judith Peak and Red Mountain Radar Sites that may be validated when the revocation is finalized and will be treated as prior existing rights. BLM would continue the other withdrawals in the planning area.

The Square Butte ONA is currently segregated from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964. BLM would pursue a protective withdrawal for Square Butte to segregate the area from locatable mineral entry to protect natural endemic systems, cultural sites, scenic qualities and rare geologic features unique to Montana. The classification would be terminated when the area is withdrawn from mining claim location.

Table 2.21 identifies, by BLM withdrawal, the acreage that would be segregated from mineral entry by high, moderate, low and very low mineral development potential.

**TABLE 2.21
ALTERNATIVE C**
**FEDERAL MINERAL ESTATE THAT WOULD BE
SEGREGATED FROM MINERAL ENTRY (Acres)**

	Total Acres	Hardrock Mineral Development Potential			
		High	Mod	Low	Very Low
Judith RA					
Square Butte ONA ACEC	1,947	0	0	0	1,947
Blacktail Fossil Site	320	0	0	0	320
Phillips RA					
Azure Cave	140	80	60	0	0
Camp Creek Campground	40	0	0	40	0
Total	2,447	80	60	40	2,267

Source: BLM, 1990

Implementation

The hardrock management guidance in the Management Common To All Alternatives section of this chapter and Appendix C describes the program for surface management of hardrock mineral exploration and development.

To ensure orderly development of mineral resources while protecting other resource values, the mitigating measures explained in the following section would be applied to Plans of Operation in the Judith Mountains Scenic Area ACEC, Collar Gulch ACEC, elk habitat in the Judith and North Moccasin Mountains, and bighorn sheep habitat in the Little Rocky Mountains. Mitigating measures would be applied together with the undue or unnecessary degradation standards of the 43 CFR 3809 regulations and the Mining Law of 1872.

Management Prescriptions for the Judith Mountains Scenic Area ACEC

1. Surface disturbing activities must meet visual contrast rating requirements for VRM Class II areas, using Lewistown as the key observation point. Mitigation requirements must be met and the area reclaimed to natural conditions.
2. Access route design for exploration and development would use the natural terrain to screen disturbances from view.
3. Facilities and equipment placement would use the natural terrain to screen them from view.
4. Camouflaging facilities or equipment would be required where they cannot be placed out of view.
5. Concurrent reclamation of a project would keep simultaneous disturbance to a minimum, thereby reducing visual intrusion.

Management Prescriptions for the Collar Gulch ACEC

1. Surface uses with the potential for hazardous or toxic discharge to Collar Gulch Creek would not be allowed in the drainage.
2. Mining activity that could physically impact the Tate-Poetter Cave would not be allowed.
3. Routine water quality monitoring would be initiated in the drainage to establish baseline conditions and set limits on future degradation to water quality.
4. No withdrawal of surface or ground water would be allowed when the flow in Collar Gulch Creek drops

below 3 cubic feet per second, at the lower reach of the trout population.

5. No mining related fluids would be discharged into Collar Gulch Creek unless nondegradation standards are met.
6. Surface disturbing activities would not be allowed within 100 feet on either side of Collar Gulch Creek, except for approved stream crossings.
7. Sediment traps would be installed below any surface disturbance to minimize sediment increases in Collar Gulch Creek.
8. Access route design for exploration and development would minimize sedimentation into streams.
9. Surface disturbing activities would be designed to avoid disturbing the Collar Peak Trail.
10. Concurrent reclamation of a project would keep simultaneous disturbance to a minimum, thereby reducing erosion and sedimentation potential.
11. The following reclamation guidance would be applied to Plans of Operation. Project reclamation plans would isolate mine waste material. This includes spent ore heaps, waste rock dumps, process pond sludge, mill tailing, etc. Specific measures employed may include, but are not limited to:
 - A. Chemical neutralization of material.
 - B. Physical encapsulation of material.
 - C. Off-site disposal of material.
 - D. Reshaping of material to enhance vegetation and prevent exposure of waste material with subsequent generation and release of leachate.
 - E. Revegetation of material to provide long-term stability.
 - F. Extended post-operation monitoring (5-plus years) before final bond release.

Management Prescriptions for Elk and Bighorn Sheep Habitat

1. Seasonal restrictions would be placed on exploration during crucial wildlife periods. Restrictions may be applied on a case-by-case basis to prevent undue or unnecessary degradation.
2. Concurrent reclamation of a project would be required to keep simultaneous disturbance to a minimum, thereby reducing wildlife habitat loss.
3. Reclamation would utilize plant species suitable for wildlife forage.

4. Wildlife proof fences would be required around solution ponds to prevent wildlife mortality.
5. Off-site mitigation or compensation would be provided for habitat loss. This may include habitat improvement or replacement with comparable sites.
6. Off-site water would be provided to draw wildlife from the active mining sites.

Riparian and Wetland Management of Watersheds

BLM would maintain and/or improve the riparian-wetland areas in existing, proposed and potential AMPs based on proper functioning condition and desired plant community (see Appendix J). Ranking would be based on site potential as determined by intensive inventories in the Prairie Potholes and Northern Great Plains Regions. It may be necessary to recategorize Category M and C allotments if significant riparian or wetland values are present and need improvement.

The first objective would be to improve or maintain riparian-wetland areas to proper functioning condition and late seral or potential natural community vegetation status to provide wildlife habitat, increase waterfowl habitat, improve watershed conditions and to comply with the nonpoint source water pollution section of the Clean Water Act. Existing AMPs would be rewritten and new AMPs written to include riparian-wetland condition objectives. These objectives would be met by grazing methods.

When trend is improving, the prescribed grazing methods should be continued even if the condition objective is not achieved in the stated time frame. If grazing methods are not successful in meeting management objectives, BLM would take the necessary action to achieve those objectives. This could include, but is not limited to, fencing riparian-wetland areas, reducing livestock numbers and use and rehabilitating degraded riparian areas.

A second objective is to accomplish the above riparian-wetland objectives while considering the economic viability of the affected ranches. This objective recognizes the importance of the intermingled BLM and base property private lands, including valuable riparian-wetland areas, which could be adversely impacted as a result of management changes on BLM land.

BLM would allocate 75% of any forage increases in riparian-wetland areas to watershed and wildlife and 25% to livestock.

Table 2.22 shows the number of allotments, miles of stream and number of water sources on BLM land. The number of water sources is based on the reservoirs, potholes and springs with water rights. Intensive riparian-wetland inventories would update this information through plan maintenance.

**TABLE 2.22
ALTERNATIVE C**

**NUMBER OF ALLOTMENTS, MILES OR STREAM
AND NUMBER OF WATER SOURCES WITHIN
ALLOTMENTS MANAGED FOR RIPARIAN AND
WETLAND VALUES**

Resource Area	Number of Allotments*	BLM Land	
		Miles of Stream	Water Sources
Judith Valley	97	125	390
Phillips	141	251	1,377
	183	180	4,143
Total	421	556	5,910

*Portions of several allotments in the Judith and Phillips RAs are within the UMNWSR Corridor.

Source: BLM, 1990

Implementation

The condition objectives would be met through livestock grazing management. This includes, but is not limited to:

1. Hot season grazing deferment,
2. Creation of separate riparian pastures,
3. Changes in kind and class of livestock,
4. Time control grazing, and
5. Other range management practices such as development of off-site water, salting, development of shade sources, herding, insect control, early pastures of crested wheatgrass, etc.

The same techniques would be applied to those riparian areas identified for wildlife habitat.

BLM would rehabilitate degraded riparian areas by seeding, planting and installing structures such as rock gabions, check dams, etc.

BLM would construct water impoundments on suitable sites as opportunities arise. Islands would be constructed on new and existing impoundments where possible and feasible. An evaluation for soils and hydrologic characteristics would determine which proposed sites are suitable.

All proposed vegetation manipulation projects would be evaluated for their potential impacts on wildlife.

BLM would include mitigation measures for surface disturbing activities to protect wetland habitat.

BLM may fence specific existing and new waterfowl and fishing reservoirs to establish or protect shoreline vegetation for a 100-foot perimeter around the high water line. Periodic, short-term grazing of fenced enclosures may be allowed, if necessary, to maintain or improve wetland habitat.

Some newly constructed water impoundments would be limited to 2-acre feet in volume or would be built with water pass-through facilities as required by the Milk River MOU with the BR.

Elk and Bighorn Sheep Habitat Management

BLM would maintain elk habitat to support the existing population on BLM land in the Missouri Breaks, Highwood Mountains and Little Belt Mountains.

BLM would also provide habitat for elk expansion on BLM land, where forage is available, in the Missouri Breaks, Square Butte, Judith Mountains, North Moccasin Mountains, and Little and Big Snowy Mountains (all in the Judith RA).

BLM would maintain bighorn sheep habitat on BLM land in the Little Rocky Mountains and Missouri Breaks and provide habitat to allow for increased bighorn sheep populations, where forage is available, in the Chimney Bend area.

The BLM would provide 593,980 acres of elk habitat and 84,711 acres of bighorn sheep habitat on BLM land within the planning area (see Table 2.23 and Figure 2.3).

TABLE 2.23 ALTERNATIVE C		
ACRES OF ELK AND BIGHORN SHEEP HABITAT ON BLM LAND		
Resource Area	Elk Habitat	Bighorn Sheep Habitat
Judith	410,796	66,187
Valley	50,806	0
Phillips	132,378	18,524
Total	593,980	84,711

Source: BLM, 1990

Implementation

BLM would maintain the current forage allocations for each allotment containing elk and bighorn sheep habitat. That portion of the Judith Mountains closed to livestock would remain closed. In the Valley RA, forage is allocated to support 250 head of elk for 6 months. Timber would be undisturbed to provide cover for elk on traditional summer and winter range.

Seasonal restrictions would be placed on oil and gas activities to protect crucial elk and bighorn sheep habitat.

Domestic sheep grazing would not be allowed to overlap bighorn sheep habitat to ensure no contact between domestic and bighorn sheep this would prevent the spread of infectious diseases.

The following mitigating measures would be applied to Plans of Operation for hardrock mining within elk habitat in the Judith and North Moccasin Mountains and bighorn sheep habitat in the Little Rocky Mountains.

1. Seasonal restrictions would be placed on exploration during crucial wildlife periods. Restrictions may be applied on a case-by-case basis to prevent undue or unnecessary degradation.
2. Concurrent reclamation of a project would be required to keep simultaneous disturbance to a minimum, thereby reducing wildlife habitat loss.
3. Reclamation would utilize plant species suitable for wildlife forage.
4. Wildlife proof fences would be required around solution ponds to prevent wildlife mortality.
5. Off-site mitigation or compensation would be provided for habitat loss. This may include habitat improvement or replacement with comparable sites.
6. Off-site water would be provided to draw wildlife from the active mining sites.

Prairie Dog and Black-Footed Ferret Management

BLM would provide 7,367 acres of prairie dog towns on BLM land in the Phillips RA, defined as Complex 1+2, for the potential reintroduction of the black-footed ferret, associate species (mountain plover, burrowing owl and ferruginous hawk) and recreational viewing. This acreage (7,367 acres) would be designated an ACEC. BLM would also provide 4,624 acres of prairie dog towns outside the Complex 1+2 for prairie dog shooting in the Phillips RA.

BLM would provide 770 acres of prairie dog towns in the Valley RA as discussed in Alternative A. Prairie dog towns would not occupy more than 1% of the BLM portion of any allotment in the Valley RA.

BLM would eliminate prairie dogs (by poisoning) on 1,330 BLM acres to stabilize the watershed and improve range condition.

Table 2.24 summarizes the prairie dog and black-footed ferret management activities and acreages in this alternative. Prairie dog towns would be maintained within an acreage range as shown in Appendix K.

**TABLE 2.24
ALTERNATIVE C**

**SUMMARY OF PRAIRIE DOG AND
BLACK-FOOTED FERRET MANAGEMENT**

Resource Area & Management	Number of Towns	BLM Acres	State Acres	Private Acres	Total Acres
Prairie Dog Mgmt.					
Judith	0	0	0	0	0
Valley	6	770	0	0	770
Phillips	0	0	0	0	0
Total	6	770	0	0	770
Ferret Management					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	50	7,367	545	849	8,761
Total	50	7,367	545	849	8,761
Shooting					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	71	4,624	1,384	4,688	10,696
Total	71	4,624	1,384	4,688	10,696
Elimination					
Judith	7	71	0	112	183
Valley	5	30	40	120	190
Phillips	114	1,229	141	819	2,189
Total	126	1,330	181	1,051	2,562
Planning Area					
Total	253	14,091	2,110	6,588	22,789

Source: BLM, 1990

Implementation - Elimination

Before poisoning prairie dog towns, the BLM would inventory each town for federally listed threatened and endangered species.

BLM would pursue poisoning of the entire 1,330 acres of prairie dog towns in one year. Poisoning would continue the following year to completely eliminate the prairie dog towns.

Implementation - Prairie Dog Management

These actions would be the same as those described in Alternative A.

In the Phillips RA, all new towns outside Complex 1+2 would be eliminated. New towns would be allowed in Complex 1+2, as long as the total acreage does not exceed 7,367 acres. If new towns are smaller than 50 acres, they would be eliminated in the Judith and Valley RAs, otherwise they would be maintained within an acreage range.

Implementation - Black-footed Ferret Management

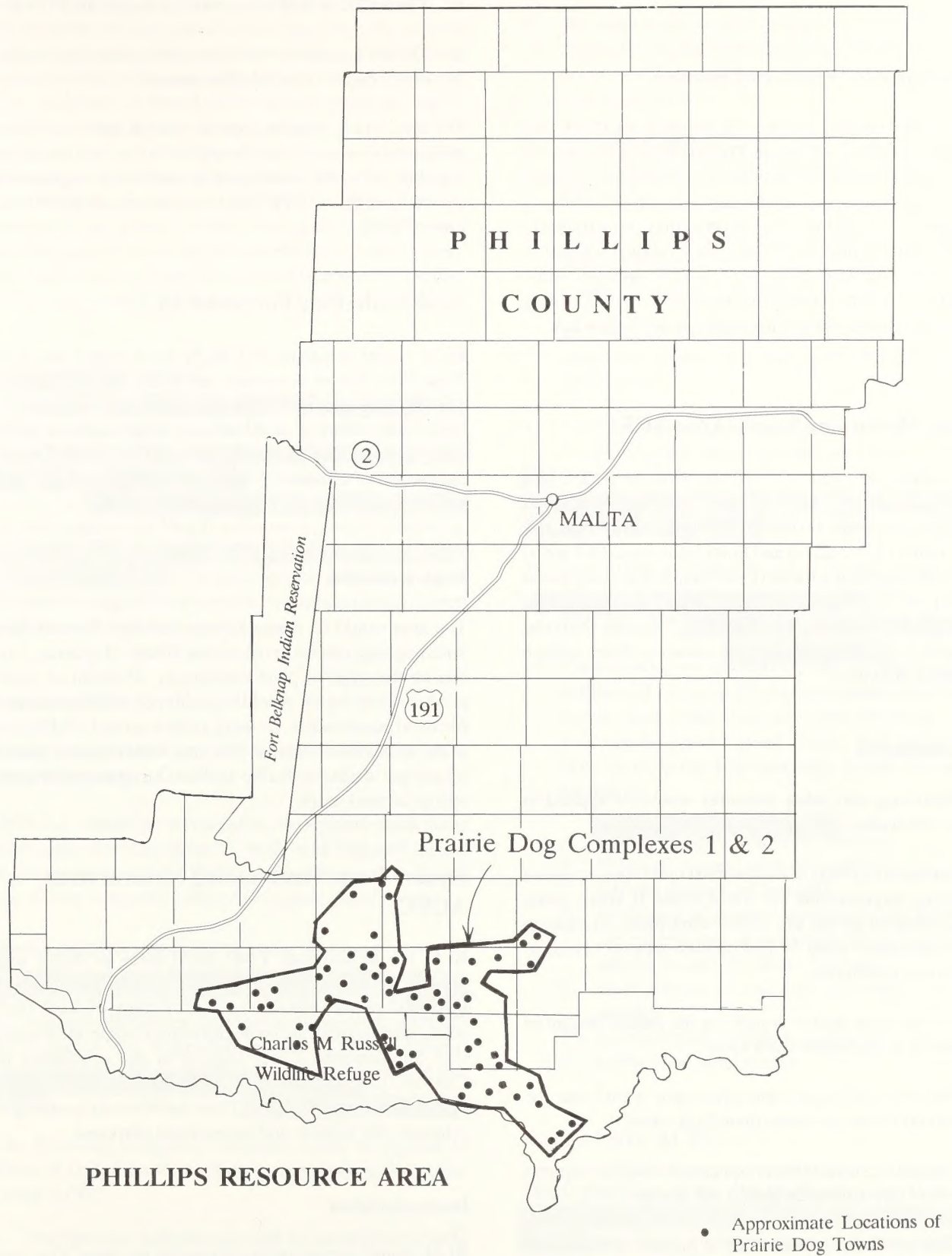
BLM would provide habitat on 7,367 BLM acres for black-footed ferret reintroduction in the Phillips RA (see Figure 2.9). The towns identified for reintroduction, Complex 1+2, are based on a paper by Clark and Minta (1988) using the Habitat Suitability Index for Black-footed Ferrets for prairie dog complexes in Montana (Houston et al, 1986). Reintroduction could include portions of the CMR and may also include 545 acres of state and 849 acres of private land.

A core area(s) on CMR and BLM land would be the initial reintroduction site for the black-footed ferret. Prairie dog towns on CMR and BLM land outside the core area(s) would be used to expand the reintroduction within Complex 1+2.

Before reintroduction occurs, all activities on BLM land in south Phillips County (south of Highway 2) would be evaluated to ensure impacts to a future reintroduction are assessed and mitigated. After reintroduction occurs, all activities within Complex 1+2 which may impact the ferret or its habitat would require informal consultation with the FWS.

Some activities near prairie dog towns identified for black-footed ferret reintroduction would be restricted. These towns would be avoidance areas for above ground ROWs; would have no further development or implementation of livestock improvements; and would not be grazed by livestock. When feasible, BLM would use mechanical treatments elsewhere in an allotment to compensate for the vegetation loss associated with these livestock restrictions. These restrictions would apply to the core prairie dog towns and a 1/4-mile area around each town. The 2,084 acres of core prairie dog towns would include an additional 2,896 acres for a total of 4,480 acres.

Figure 2.9 Prairie Dog Towns/Black-footed Ferret Management - Alternative C.



Oil and gas leasing within Complex 1+2 would be restricted. Surface occupancy and use would be prohibited to protect the black-footed ferret reintroduction area (see Appendix B).

Implementation - Prairie Dog Shooting

BLM would manage prairie dog shooting on BLM land outside Complex 1+2 in the Phillips RA (4,624 acres). BLM would respond to requests for information, prepare maps, sign prairie dog towns and manage the towns to provide shooting. Prairie dog shooting may be restricted to a certain number of shooters each year to allow for a quality experience. Prairie dog shooting would continue within Complex 1+2 until ferret reintroduction occurs. Shooting would be allowed, but not managed, in the Valley RA.

Judith Mountains Scenic Area ACEC

BLM would designate 4,566 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect the scenic, wildlife and recreation values in the Judith (3,702 acres) and South Moccasin (864 acres) Mountains (see Supplemental Color Map B at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by the BLM. This area would be managed to mitigate impacts to resources from surface disturbing activities.

Implementation

The following mitigating measures would be applied to protect the scenic, wildlife and recreation values:

1. Surface disturbing activities must meet visual contrast rating requirements for VRM Class II areas, using Lewistown as the key observation point. Mitigation requirements must be met and the area reclaimed to natural conditions.
2. Access route design would use the natural terrain to screen disturbances from view.
3. Facilities and equipment placement would use the natural terrain to screen them from view.
4. Camouflaging facilities or equipment would be required where they cannot be placed out of view.
5. Concurrent reclamation of a project would keep simultaneous disturbance to a minimum, thereby reducing visual intrusion.

6. Off-road travel would be restricted yearlong to designated roads and trails.
7. The ACEC would be an avoidance area for ROWs.
8. Oil and gas leases would contain a controlled surface use stipulation for visual resources.

The area would remain open to mineral entry and these mitigating measures would be applied to Plans of Operations together with the undue and unnecessary degradation standards of the 43 CFR 3809 regulations and the Mining Law of 1872.

Acid Shale-Pine Forest ACEC

BLM would designate 817 BLM acres within the Acid Shale-Pine Forest ecosystem an ACEC and prepare an activity plan to identify specific management actions to protect an endemic plant community unique to the area and a fragile watershed (see Supplemental Color Map C at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM.

Implementation

The area would be managed as a Research Natural Area with ongoing studies to determine effects of grazing, fire, etc. on this type of plant community. Disposal of forest products from the site would be prohibited, unless necessary for stand preservation. Grazing, recreation and wildlife use of the area would continue. The area would remain open to oil and gas leasing with a No Surface Occupancy restriction and to mineral entry.

Square Butte Outstanding Natural Area ACEC

BLM would designate 1,947 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect natural endemic systems, cultural sites, scenic qualities and rare geologic features unique to Montana (see Supplemental Color Map A at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. These lands would be managed primarily for wildlife and recreational purposes.

Implementation

BLM would pursue public access to the area. The area would be closed to oil and gas leasing, except to protect from drainage, and closed to ORVs.

The Square Butte ONA is currently segregated from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964. BLM would pursue a protective withdrawal for Square Butte to segregate the area from locatable mineral entry to protect natural endemic systems, cultural sites, scenic qualities and rare geologic features unique to Montana. The classification would be terminated when the area is withdrawn from mining claim location.

Recreation and habitat management plans for the area would include a recreational trail system, camping areas, a recreation use policy, habitat management direction for wildlife populations including prescribed fire, security areas, etc. The sale of forest products would be prohibited, unless necessary for stand preservation.

Collar Gulch ACEC

BLM would designate 1,160 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect a pure strain of westslope cutthroat trout, which is a Montana State Species of Special Concern (see Supplemental Color Map D at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. The area's primary emphasis would be on protecting wildlife (westslope cutthroat trout) habitat and nonmotorized recreational use.

Implementation

Public access would be pursued for vehicles to the ACEC's eastern boundary.

ORV use would be restricted to designated roads from September 1 to December 1, with road closures during highly erosive periods. The area would be open to oil and gas leasing with a No Surface Occupancy restriction.

Stream protection and enhancement structures would be initiated to improve trout habitat. BLM would initiate a study to identify the source of water quality degradation in the drainage and develop appropriate measures to eliminate or mitigate the degradation source. Recreational developments in the area would be designed to protect fish habitat.

The following mitigating measures would be applied to Plans of Operation for hardrock mining within the Collar Gulch ACEC:

1. Surface uses with the potential for hazardous or toxic discharge to Collar Gulch Creek would not be allowed in the drainage.
2. Mining activity that could physically impact the Tate-Poetter Cave would not be allowed.

3. Routine water quality monitoring would be initiated in the drainage to establish baseline conditions and set limits on future degradation to water quality.
4. No withdrawal of surface or ground water would be allowed when the flow in Collar Gulch Creek drops below 3 cubic feet per second, at the lower reach of the trout population.
5. No mining related fluids would be discharged into Collar Gulch Creek unless nondegradation standards are met.
6. Surface disturbing activities would not be allowed within 100 feet on either side of Collar Gulch Creek, except for approved stream crossings.
7. Sediment traps would be installed below any surface disturbance to minimize sediment increases in Collar Gulch Creek.
8. Access route design for exploration and development would minimize sedimentation into streams.
9. Surface disturbing activities would be designed to avoid disturbing the Collar Peak Trail.
10. Concurrent reclamation of a project would keep simultaneous disturbance to a minimum, thereby reducing erosion and sedimentation potential.
11. The following reclamation guidance would be applied to Plans of Operation. Project reclamation plans would isolate mine waste material (spent ore heaps, waste rock dumps, process pond sludge, mill tailing, etc). Specific measures employed may include, but are not limited to:
 - A. Chemical neutralization of material.
 - B. Physical encapsulation of material.
 - C. Off-site disposal of material.
 - D. Reshaping of material to enhance vegetation and prevent exposure of waste material with subsequent generation and release of leachate.
 - E. Revegetation of material to provide long-term stability.
 - F. Extended post-operation monitoring (5-plus years) before final bond release.

Azure Cave ACEC

BLM would designate 479 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect cave resources and potentially the northernmost bat hibernaculum in the United States (see Supplemental Color Map E at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM.

Implementation

BLM would allow cave access from May 15 through September 15. A caged ladder at the entry and at the chimney would provide cave access. Permits for using the cave would be issued to individuals or to a concessionaire. Developments would include lights, sanitation facilities, signing and an external shelter. BLM would pursue access from the Seven Mile road and develop an all weather road to a parking lot and an asphalt trail to the cave opening. The area would be open to oil and gas leasing with a No Surface Occupancy restriction.

Big Bend of the Milk River ACEC

BLM would designate 2,120 acres of BLM land within the Henry Smith and Beaucoup Sites an ACEC and prepare an activity plan to identify specific management actions to protect unusual and unique archaeological resources representing bison hunting and prehistoric ceremonial use of the Northwestern Plains (see Supplemental Color Map F at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM.

Implementation

The area would remain open to ORVs, mineral entry and oil and gas leasing with a No Surface Occupancy restriction.

The Henry Smith Site (1,000 acres) would be developed for public and scientific use including interpretation and public education. BLM would also pursue public access to the site. Lands within the ACEC would be inventoried to record any additional sites and mapping and/or collecting of data would be completed as necessary. Developments at this site would include roads and walking paths with interpretative signs for visitor information.

The Beaucoup Site (1,120 acres) would be managed for scientific use. Lands within the site would be inventoried for cultural resources. All resources would be mapped, collected and excavated as necessary for relevant archaeological data.

ALTERNATIVE D

This alternative emphasizes resource protection. Some land uses would be restricted by withdrawals, stipulations and/or mitigation to protect and enhance non-consumptive resources (recreation, soil, visual and cultural resources, riparian and wetland values). If selected this alternative plus the guidance in the Management Common To All Alternatives section would form the RMP.

Land Acquisition and Disposal

BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment under this land use plan. Acquisitions could include private, state or other land that would meet the objectives of the State Director's Guidance on Land Pattern Review and Land Adjustment (1984) (see Appendix A). Private, state or other lands meeting the criteria in Appendix A would be in conformance with this land use plan. The main objective would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability. Lands acquired would have multiple resource values such as access, riparian-wetland areas, ACECs, recreation and wildlife habitat.

A total of 166,021 acres of BLM land would be available for disposal to meet the acquisition objectives (see Table 2.6 and Appendix A). The lands identified for disposal would be available for exchange. These lands may also be available for sale to facilitate an individual land exchange. For purposes of sale these lands meet FLPMA disposal criteria Sec. 203(a)(1). BLM land identified for disposal would be subject to further site specific evaluation and if significant values are found they may be retained under BLM management. An environmental analysis and Notice of Realty Action would be completed for each disposal action. Areas not identified for disposal would be managed for long-term public ownership.

Implementation

During any purchase or exchange action, BLM would attempt to maintain the respective county tax base and allow no overall net gain in BLM land over the life of this plan.

As opportunities arise, BLM would evaluate land exchanges involving private and state inholdings within the CMR on a case-by-case basis.

Acquisitions could occur by exchange or purchase through negotiation with willing landowners. Exchange would be the primary method of acquisition and may include BLM land within or outside the planning area.

Access to BLM Land

Access would be pursued to BLM land where no legal public access exists and/or where additional access to major blocks of BLM land is needed. This includes preserving and improving access to BLM land. Access would provide for improved land management and use by the public for

hunting, camping, picnicking, and other recreational activities.

BLM has identified 71,793 BLM acres needing new legal public access and 1,126,858 BLM acres needing additional access (see Table 2.25). The New Year Peak, Pyramid Peak, Armells Headwaters, Chicago Gulch, Fox Peak, Lewis Peak, Lookout Peak, Black Butte, Square Butte, North and South Moccasin Mountains, and the Missouri Breaks areas would be priority areas for increasing legal public access.

TABLE 2.25 ALTERNATIVE D		
ACRES OF BLM LAND NEEDING NEW AND ADDITIONAL LEGAL PUBLIC ACCESS		
Resource Area	New Access	Additional Access
Judith	67,740	231,260
Valley	13	72,860
Phillips	4,040	822,738
Total	71,793	1,126,858

Source: BLM, 1990

BLM would support the public road network, primarily county roads, leading to BLM land by establishing limited cooperative agreements for maintenance with the respective counties. BLM roads or trails would be extended and/or upgraded to reflect public access needs. Table 2.26 shows the BLM roads identified that would be extended or upgraded.

TABLE 2.26 ALTERNATIVE D		
BLM ROADS THAT WOULD BE EXTENDED OR UPGRADED		
Road Name	Current Type	Proposed Type
East Dry Fork	Two-track	Gravel
Frenchman Rd.	Two-track	Bladed
White Rock Rd.	Trail	Bladed
Indian Lake Rd.	Two-track	Bladed
Pea Ridge Rd.	Two-track	Bladed

Source: BLM, 1990

Implementation

Transportation planning would identify additional areas for access and road extension or upgrading.

Access would be accomplished primarily by easements or land exchanges. Other methods include, but are not limited to cooperative agreements, Land and Water Conservation Fund acquisitions, or patent reservations.

Public access routes and boundaries would be signed and restricted travel areas would be identified and mapped. BLM would develop public information programs, monitor use and enforce regulations.

Off-Road Vehicle Designations

BLM would restrict ORV use on BLM land yearlong or seasonally to designated roads and trails or close specific areas to protect the resource values in ACECs, preserve and protect wilderness values in the WSAs, protect vegetative cover to maintain watersheds and water quality, reduce user conflicts, reduce harassment of wildlife and provide habitat security, and protect habitat on primary and secondary prairie dog towns for potential black-footed ferret reintroduction.

BLM would provide a 40-acre intensive ORV use area north of Glasgow for competitive events such as races and rallies.

BLM would designate 40 BLM acres open, 2,785,147 BLM acres limited and 20,970 BLM acres closed to ORVs (see Table 2.27 and Figure 2.10).

TABLE 2.27 ALTERNATIVE D				
BLM LAND DESIGNATED AS OPEN, LIMITED, OR CLOSED TO ORVS				
Resource Area	Open	Limited Seasonal	Limited Yearlong	Closed
Judith	0	343,099	354,100	4,382
Valley	40	939,856	65,890	14,100
Phillips	0	844,525	237,677	2,488
Total	40	2,127,480	657,667	20,970

Source: BLM, 1990

Figure 2.10 ORV Designations - Alternative D.

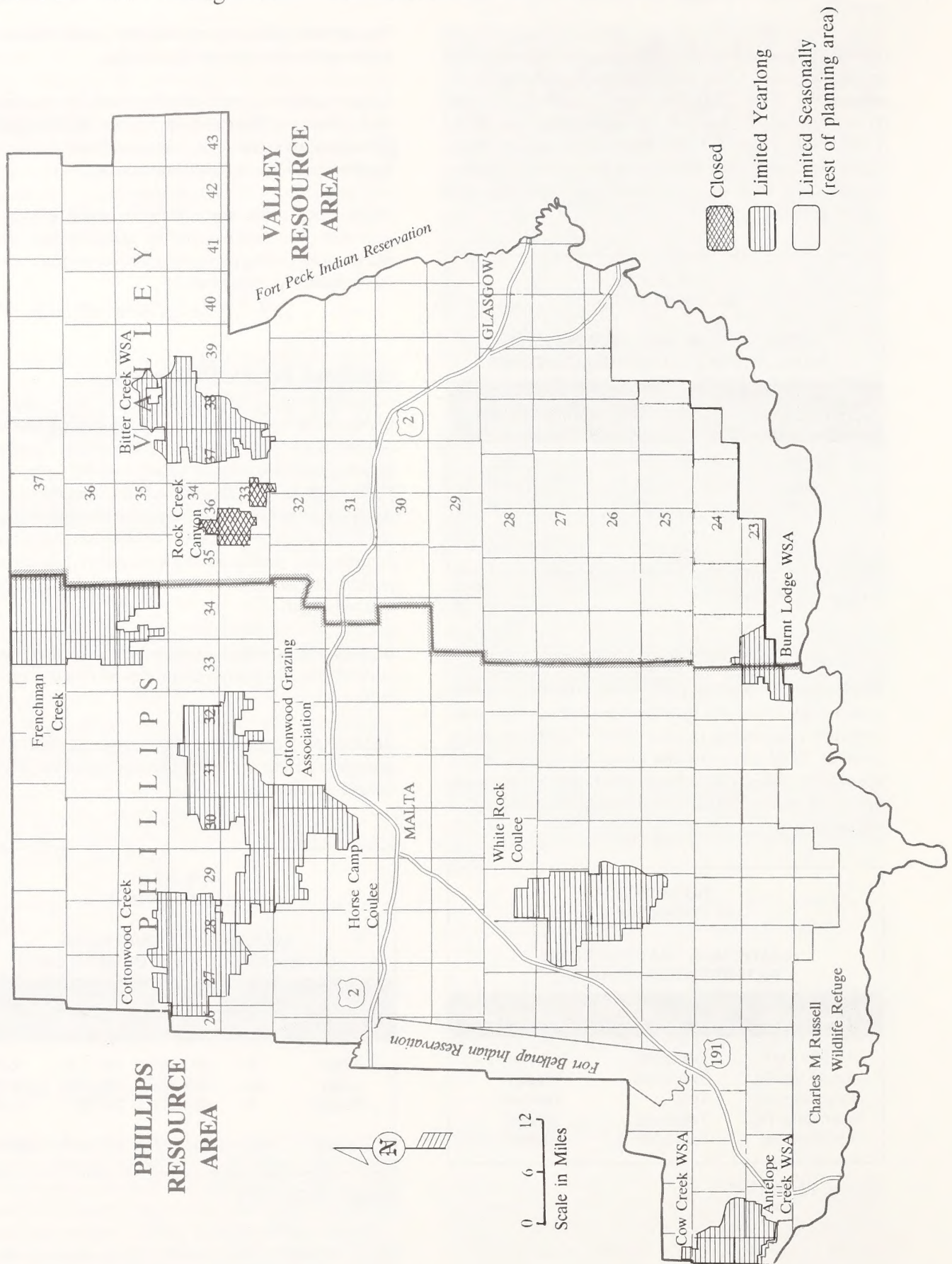
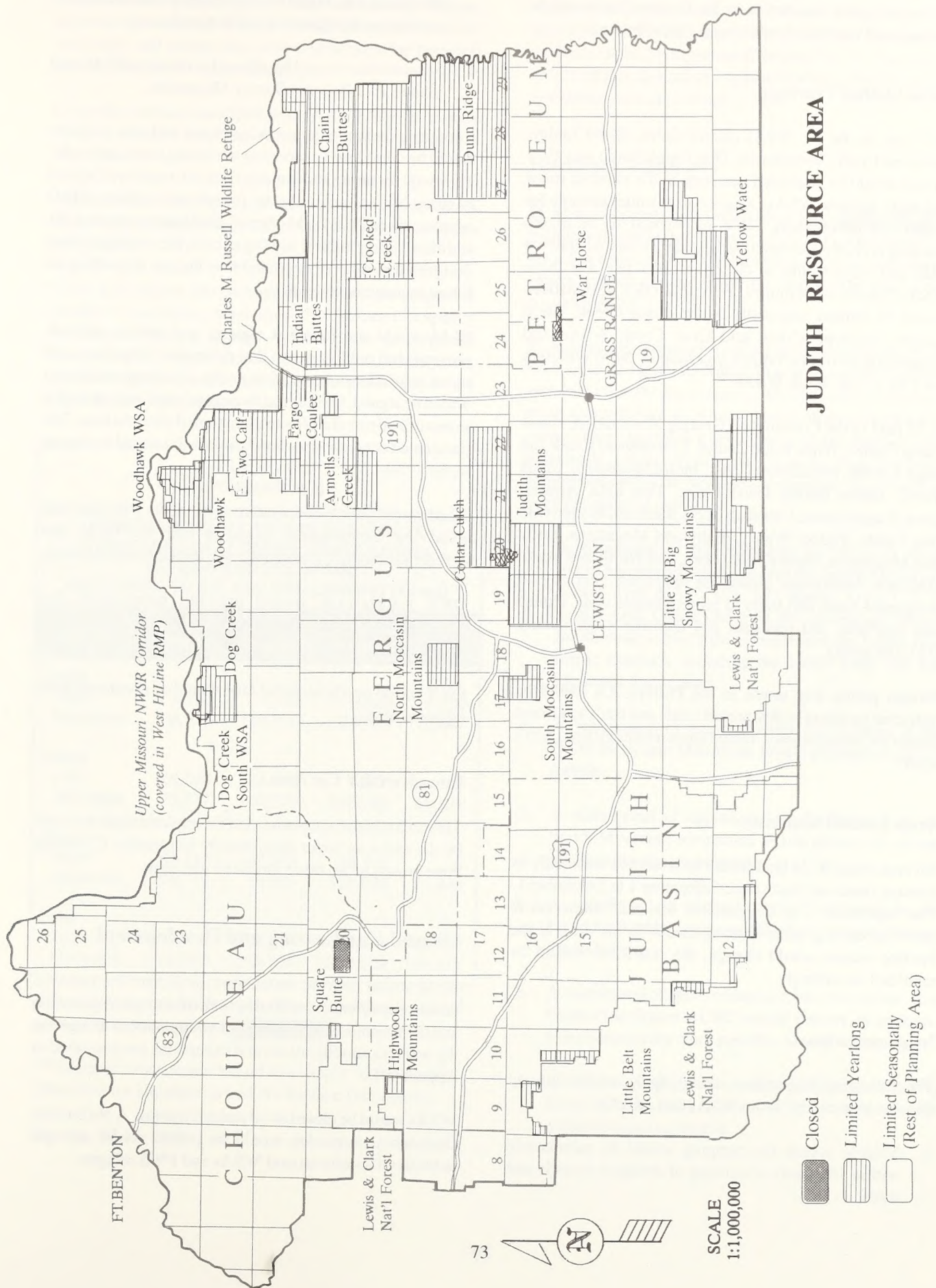


Figure 2.10 ORV Designations - Alternative D. (Continued)



Areas Closed

The Square Butte ONA ACEC, Collar Gulch ACEC, Acid Shale-Pine Forest (War Horse) ACEC, Rock Creek Canyon and eight prairie dog towns in the Phillips RA would be closed to all motorized vehicle use (20,970 acres).

Areas Limited Yearlong

ORV use in the six WSAs (Bitter Creek, Burnt Lodge, Antelope Creek, Woodhawk, Dog Creek South and Cow Creek) would be restricted yearlong to the existing roads and trails. In those WSAs Congress determines suitable for wilderness designation, ORV use would be restricted yearlong to cherry-stemmed and boundary roads. All internal trails and ways would be closed to ORV use. For those WSAs Congress determines unsuitable, ORV designations would be limited seasonally in the Bitter Creek, Burnt Lodge, Antelope Creek and Cow Creek WSAs and designation would be limited yearlong in the Woodhawk and Dog Creek South WSAs.

BLM land in the Cottonwood Grazing Association, Horse Camp Coulee, White Rock Coulee, Cottonwood Creek and Black Coulee, Frenchman Creek, Judith Mountains, Chain Buttes, Indian Buttes, Dunn Ridge, Two Calf, Armells Creek, Fargo Coulee, Crooked Creek, Blacktail, Woodhawk, Dog Creek, Yellow Water, Highwood Mountains, Little Belt Mountains, Snowy Mountains, and North and South Moccasin Mountains would be restricted yearlong to designated roads and trails to protect fragile soils, reduce user conflicts, and maintain and improve water quality (537,410 acres).

Sixteen prairie dog towns in the Phillips RA would be restricted yearlong to designated roads and trails to protect habitat for potential black-footed ferret reintroduction (3,617 acres).

Areas Limited Seasonally

All remaining BLM land would be restricted seasonally to existing roads and trails from September 1 to December 1. The September 1 to December 1 seasonal restriction is based on the big game hunting season in the area. If the hunting season would change, the restriction would be modified accordingly.

Implementation

The following exceptions would apply to the limited designations except in the WSAs and ACECs:

1. Vehicle access for camping would be permissible within 100 yards of existing or designated roads and trails,

2. Vehicle access for the retrieval of downed big game would be permissible,
3. The non-ambulatory handicapped, as defined by Montana Law, would be allowed motorized access off existing or designated roads and trails, and
4. Snowmobiles would be allowed to travel on BLM land in the Little Belt and Snowy Mountains.

Resource damage, changes in landscape and user conflicts would be considered in opening or closing roads and trails. The guide for rating soil impacts from off-road travel would be used as an indicator to revise restrictions (MSO supplement to 7162 BLM Manual-Soil Interpretations). As additional mapping and signing occurs, the roads and trails designated as open or restricted may change depending on future management needs.

BLM would implement a signing and public outreach program and publish a map that delineates boundaries and travel restrictions. Areas limited with a yearlong restriction would be signed, identifying those roads and trails not open to motorized travel and an explanation of allowed uses. The designated access routes (roads and trails) would be signed in the WSAs.

BLM would pursue cooperative agreements with state and local law enforcement agencies and use BLM law enforcement ranger(s) to monitor and implement restrictions.

ORV regulations would provide permission for administrative access for lessees (grazing, mineral, oil and gas or other).

ORV use on newly acquired land would be consistent with adjacent areas.

Intensive ORV Use Area

This area and the actions needed for implementation would be the same as those described in Alternative C, except there would be no other intensive use areas.

Oil and Gas Leasing and Development

BLM would provide stipulations to protect the resource values identified as conflicting with oil and gas exploration and development on BLM land. The stipulations along with the waivers, modifications and exceptions are described in Appendix B.

WSAs would be closed to oil and gas leasing. A No Surface Occupancy restriction would be placed on oil and gas activities 1/4-mile around WSAs and FWS refuges.

A No Surface Occupancy restriction would be placed on oil and gas activities to protect critical paleontology sites, R&PP and facilities, developed recreation sites, occupied raptor nests, bald eagle nests, piping plover nesting habitat, crucial winter range, grouse leks and nesting habitat, reservoirs greater than 10 surface acres, designated fisheries reservoirs and prairie dog towns identified for potential black-footed ferret reintroduction.

Controlled surface use stipulations would be used to protect visual resources, sensitive soils, cultural sites and prairie dog towns.

A lease notice would be used to inform lessees and operators of the requirements for cultural resource historic preservation compliance.

Table 2.28 shows the acreage that would be subject to standard lease terms, stipulations, No Surface Occupancy or closed to leasing in high and moderate development potential areas. There are no areas of low development potential within the planning area, except FS land in the Little Rocky Mountains.

TABLE 2.28 ALTERNATIVE D FEDERAL MINERAL ESTATE SUBJECT TO STANDARD LEASE TERMS, STIPULATIONS, NO SURFACE OCCUPANCY OR CLOSED TO OIL AND GAS LEASING (Acres)				
Resource Area & Potential	Standard Terms Only*	Stipulations	No Surface Occupancy**	Closed
Judith				
High	8,795	7,135	2,560	5,150
Moderate	138,573	110,730	584,601	10,047
Valley				
High	28,324	34,296	5,220	0
Moderate	75,277	408,702	516,300	66,525
Phillips				
High	65,747	167,023	98,110	0
Moderate	124,779	39,925	828,028	61,840
Total				
High	102,866	208,454	105,890	5,150
Moderate	338,629	559,357	1,928,929	138,412

*Standard terms would include a lease stipulation on visual resources which applies to all leases.

**Standard lease terms would also apply to the acreage identified for stipulations and No Surface Occupancy.

Source: BLM, 1990

Implementation

Current oil and gas leases would continue according to the respective stipulations until they expire. As current leases expire, the areas would come under the management guidelines of this document. The oil and gas management guidance in the Management Common To All Alternatives section of this chapter and Appendix B describes the oil and gas leasing and permitting process.

Hardrock Mining

BLM would protect certain sensitive areas on BLM land by withdrawing them from location and entry under the mining laws. Sensitive areas would include some areas with scenic values, crucial elk and bighorn sheep habitat and certain potential ACECs.

BLM would recommend revoking the withdrawal for Judith Peak and Red Mountain Radar Sites and continue the other withdrawals in the planning area. BLM would pursue seven protective withdrawals in those areas with sensitive resource values where hardrock exploration and development may potentially create significant impacts. The following withdrawals would be proposed to segregate the areas from locatable mineral entry:

1. A withdrawal of approximately 25,160 acres in the Judith Mountains would protect the Judith Mountains Scenic Area ACEC, U.S. 191 Scenic Area, U.S. 87 Scenic Area, Collar Gulch ACEC, crucial elk habitat, Judith Peak scenic road corridor and the Judith Peak scenic overlook including the Judith Peak and Red Mountain Radar Sites.
2. A withdrawal of approximately 1,073 acres in the North Moccasin Mountains would protect crucial elk habitat.
3. A withdrawal of approximately 2,194 acres in the South Moccasin Mountains would protect the scenic qualities for the visual resources.
4. A withdrawal of approximately 5,504 acres in the Little Rocky Mountains would protect crucial bighorn sheep habitat.
5. A withdrawal of approximately 3,169 acres in the Acid Shale-Pine Forest ACEC would protect an endemic plant community from possible bentonite mining.
6. A withdrawal of approximately 10,720 acres in the Big Bend of the Milk River ACEC would protect archaeological resources.

7. The Square Butte ONA is currently segregated from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964. BLM would pursue a protective withdrawal for Square Butte (1,947 acres) and terminate the classification when the area is withdrawn.

Table 2.29 identifies, by BLM withdrawal the acreage that would be segregated from mineral entry by high, moderate, low and very low mineral development potential.

Implementation

The hardrock management guidance in the Management Common To All Alternatives section of this chapter and Appendix C describes the program for surface management of hardrock mineral exploration and development.

Before BLM approves a Plan of Operations on existing mining claims in areas withdrawn, validity examinations

would be conducted on those mining claims involved in the proposed operation. If the claims did not contain a discovery, within the meaning of the Mining Laws, the claims would be declared null and void and the Plan of Operations would be denied. BLM would consider purchasing valid claims where activities threaten the resource values protected by the withdrawal.

Riparian and Wetland Management of Watersheds

BLM would maintain and/or improve the riparian-wetland areas in existing, proposed, potential AMPs and non-AMP areas based on proper functioning condition and desired plant community (see Appendix J). Ranking would be based on potential as determined by intensive inventories in the Prairie Potholes and Northern Great Plains Regions. It may be necessary to recategorize Category M and C allotments if significant riparian or wetland values are present and need improvement.

TABLE 2.29 ALTERNATIVE D					
FEDERAL MINERAL ESTATE THAT WOULD BE SEGREGATED FROM MINERAL ENTRY (Acres)					
	Total Acres	High	Hardrock Mineral Development Mod	Potential Low	Very Low
Judith RA					
Blacktail Fossil Site	320	0	0	0	320
Square Butte ONA ACEC	1,947	0	0	0	1,947
Judith Mountains	25,160	1,761	16,748	6,651	0
North Moccasins	1,073	0	993	80	0
South Moccasin	2,194	0	1,754	440	0
Acid Shale-Pine Forest ACEC	3,169	0	0	0	3,169
Phillips RA					
Azure Cave	140	80	60	0	0
Montana Gulch Campground	60	20	40	0	0
Camp Creek Campground	40	0	0	40	0
Landusky Town Site	83	0	83	0	0
Landusky Recreation Site	15	0	15	0	0
Zortman Town Site	108	0	70	38	0
Proposed					
Little Rocky Mountains	5,504	0	4,494	1,010	0
Big Bend of the Milk River ACEC	10,720	0	0	0	10,720
Total	50,533	1,861	24,257	8,259	16,156

Source: BLM, 1990

The first objective would be to improve or maintain riparian-wetland areas to proper functioning condition and late seral or potential natural community vegetation status to provide wildlife habitat, increase waterfowl habitat by 30%, improve watershed conditions and to comply with the nonpoint source water pollution section of the Clean Water Act. Existing AMPs would be rewritten and new AMPs written to include riparian-wetland condition objectives. These objectives would be met by grazing methods.

When trend is improving the prescribed grazing methods should be continued even if the condition objective is not achieved in the stated time frame. If grazing methods are not successful in meeting management objectives, BLM would take the necessary action to achieve those objectives. This could include, but is not limited to, fencing riparian-wetland areas, reductions in livestock numbers and use and rehabilitation of degraded riparian areas.

A second objective is to accomplish the above riparian-wetland objectives while considering the economic viability of the affected ranches. This objective recognizes the importance of the intermingled BLM and base property private lands, including valuable riparian-wetland areas, which could be adversely impacted as a result of management changes on BLM land.

BLM would allocate all increases in vegetation within riparian-wetland areas to watershed and wildlife.

Table 2.30 shows the number of allotments, miles of stream and number of water sources on BLM land. The number of water sources is based on the reservoirs, potholes and springs with water rights. Intensive riparian-wetland inventories would update this information through plan maintenance.

TABLE 2.30 ALTERNATIVE D			
NUMBER OF ALLOTMENTS, MILES OF STREAM AND NUMBER OF WATER SOURCES WITHIN ALLOTMENTS MANAGED FOR RIPARIAN AND WETLAND VALUES			
Resource Area	Number of Allotments*	BLM Land	
		Miles of Stream	Water Sources
Judith	205	151	555
Valley	178	252	1,433
Phillips	264	196	4,399
Total	647	599	6,387

*Portions of several allotments in the Judith and Phillips RAs are within the UMNWSR Corridor.

Source: BLM, 1990

Implementation

These objectives would be met through livestock grazing management. This includes, but is not limited to:

1. Hot season grazing deferment,
2. Creation of separate riparian pastures,
3. Changes in kind and class of livestock,
4. Time control grazing, and
5. Other range management practices such as development of off-site water, salting, development of shade sources, herding, insect control, early pastures of crested wheatgrass, etc.

Seeding, planting and installing rock gabions and check dams may be used to meet riparian objectives in addition to grazing management.

BLM would implement livestock grazing formulas to provide waterfowl nesting cover on allotments with existing or potential waterfowl production areas.

To improve waterfowl production, BLM would construct six to eight satellite water bodies of 2 to 3 surface acres within 1.5 miles of existing perennial water bodies greater than 10 surface acres. BLM would also construct perennial water bodies (40% of which must be at least 3-feet deep) within 1.5 miles of a cluster, four to five, of satellite water bodies.

BLM may fence specific existing and new waterfowl and fishing reservoirs to establish or protect shoreline vegetation for a 100-foot perimeter around the high water line. Periodic, short-term grazing of fenced enclosures may be allowed, if necessary, to maintain or improve wetland habitat.

BLM would continue to exclude all insecticide, herbicide, prescribed fire and mechanical disturbances within the wetlands complex (aquatic and terrestrial habitat) except as required for wildlife habitat management objectives. Mechanical land treatments may be implemented on soil subgroups 1, 2, 10, and 11, containing predominately blue grama and club moss vegetation, to improve waterfowl nesting cover.

BLM would negotiate with the BR to modify the current Milk River MOU to make water availability for waterfowl as flexible as possible, e.g. drilling artesian wells for water replacement when ephemeral water would not reach the main Milk River drainage.

Elk and Bighorn Sheep Habitat Management

BLM would provide 660,140 acres of habitat to maintain and/or expand elk on BLM land in the Missouri Breaks, Highwood Mountains, Square Butte, Little Belt Mountains, Judith Mountains, North and South Moccasin Mountains, and Little and Big Snowy Mountains (see Table 2.31 and Figure 2.11). This would also allow for new elk populations in unoccupied habitat where suitable forage is available in the Little Rocky Mountains, the South Moccasin Mountains and in the Missouri Breaks Bull Creek area.

BLM would provide 156,930 acres of habitat to maintain and expand bighorn sheep in the planning area (see Table 2.31 and Figure 2.11). This would also allow for new bighorn sheep populations in unoccupied habitat, where suitable forage is available, in the Larb Hills area and the Missouri Breaks Bull Creek area.

TABLE 2.31 ALTERNATIVE D ACRES OF ELK AND BIGHORN SHEEP HABITAT ON BLM LAND		
Resource Area	Elk Habitat	Bighorn Sheep Habitat
Judith	412,113	66,187
Valley	50,806	25,902
Phillips	197,221	64,841
Total	660,140	156,930

Source: BLM, 1990

Implementation

BLM would manage and limit access in elk and bighorn sheep habitat to increase habitat security. This would be done by restricting ORV use to designated or existing roads and trails. All other roads in elk and bighorn sheep habitat would be closed for the general and early elk and bighorn sheep hunting seasons.

BLM would plant lure crops on BLM land, where feasible, to draw elk from private crop land where depredation conflicts are occurring. Planting lure crops would be considered for small areas and management could include fencing, grazing methods or a change in season of use for livestock. Planting and maintaining lure crops would be most feasible under a cooperative arrangement with the MDFWP or other organizations.

These areas would be leased for oil and gas with No Surface Occupancy restrictions within the crucial winter range to protect elk and bighorn sheep habitat.

BLM would withdraw elk calving areas, sheep lambing areas and the respective winter range from mining claim location where conflicts may occur. This includes land in the Judith Mountains, North Moccasin Mountains, Little Rocky Mountains and Square Butte ONA.

Domestic sheep grazing would not be allowed to overlap bighorn sheep habitat to ensure no contact occurs between domestic and bighorn sheep. This would prevent the spread of infectious diseases.

Prairie Dog and Black-Footed Ferret Management

BLM would provide 12,105 acres of prairie dog towns on BLM land, in the Phillips RA (7km Complex) for the potential reintroduction of black-footed ferrets, associate species (mountain plover, burrowing owl, and ferruginous hawk) and recreational viewing. Prairie dog towns on BLM land identified for reintroduction of the black-footed ferret would be designated an ACEC (12,105 acres). BLM would initially provide 1,115 acres of prairie dog towns for prairie dog shooting in the Phillips RA and allow prairie dog expansion on another 8,885 acres. Appendix K lists the allotments within the reintroduction area and the prairie dog shooting area.

BLM would also provide prairie dog towns for associate species, recreational viewing and prairie dog shooting in the Valley and Judith RAs. Prairie dog towns would be allowed to expand to 5,000 acres in both Valley and Judith RAs. BLM would initially provide 800 acres of prairie dog towns in the Valley RA and 71 acres in Judith RA and allow for the expansion on another 4,200 acres in Valley and 4,929 acres in Judith. Prairie dogs would not occupy more than 10% of the BLM portion of any allotment in the Judith and Valley RAs.

Table 2.32 summarizes the prairie dog and black-footed ferret management activities and acreages in this alternative. Prairie dog towns would be maintained within an acreage range as shown in Appendix K.

Implementation - Elimination

Before poisoning prairie dog towns, the BLM would inventory each town for federally listed threatened and endangered species.

Figure 2.11 Elk and Bighorn Sheep Habitat - Alternative D

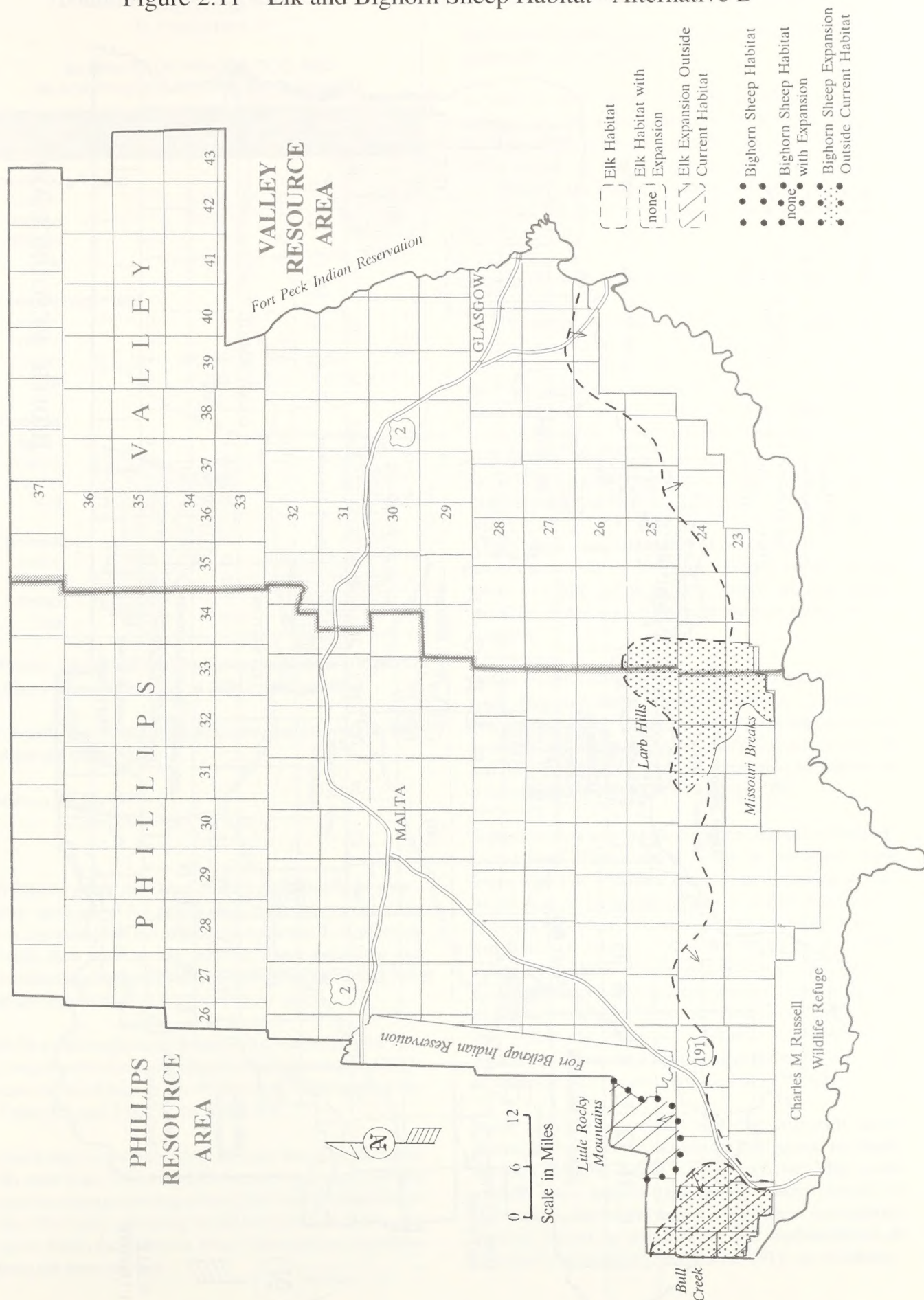
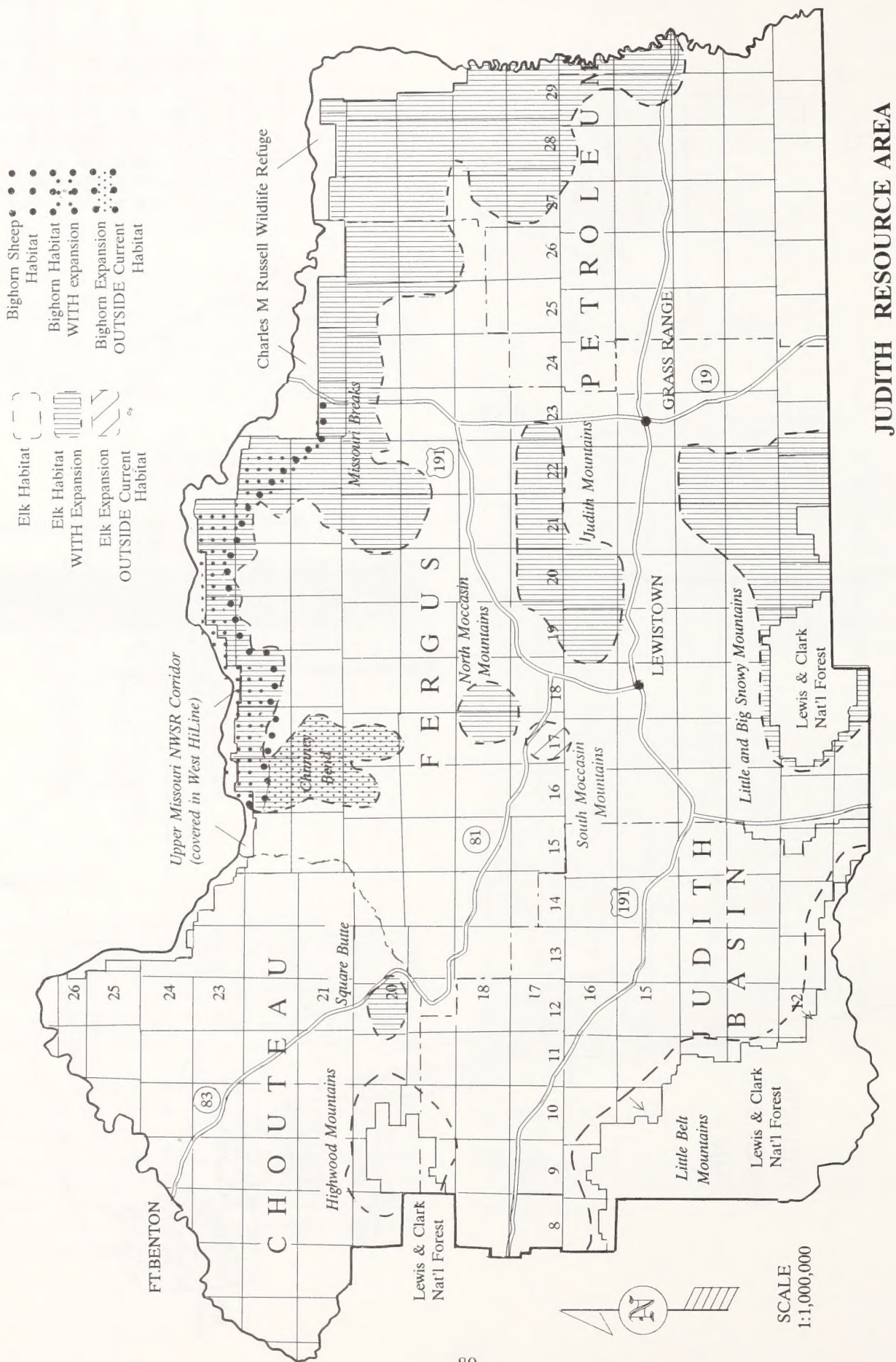


Figure 2.11 Elk and Bighorn Sheep Habitat - Alternative D. (continued)



**TABLE 2.32
ALTERNATIVE D**

**SUMMARY OF PRAIRIE DOG AND
BLACK-FOOTED FERRET MANAGEMENT**

Resource Area & Management	Number of Towns	BLM Acres	State Acres	Private Acres	Total Acres
Prairie Dog Mgmt.					
Judith	*	5,000	0	0	5,000
Valley	**	5,000	0	0	5,000
Phillips	0	0	0	0	0
Total		10,000	0	0	10,000
Ferret Management					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	157	12,105	2,005	5,660	19,770
Total	157	12,105	2,005	5,660	19,770
Shooting					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	**	10,000	0	0	10,000
Total	0	10,000	0	0	10,000
Elimination					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	0	0	0	0	0
Total	0	0	0	0	0

*Prairie dogs would be allowed to expand in the allotments where the towns exist and in adjacent allotments.

**Prairie dogs would be allowed to expand in the allotments where the towns exist.

Source: BLM, 1990

Poisoning within the 7km Complex may initially be a one-time application for prairie dog towns above the high management level as indicated in Appendix I. Monitoring would then indicate the need for future poisoning and would be applied on a rotational basis to no more than 20% of the total acreage (12,105 acres) per year.

BLM would eradicate all prairie dog towns outside the 7km Complex when the prairie dog shooting area exceeds 10,000 acres on BLM land in the Phillips RA, 5,000 acres in the Valley RA and 5,000 in the Judith RA.

Prairie dog towns larger than 50 acres would be managed. No more than 10% of the BLM acres in any one allotment would contain prairie dog towns. Once an allotment reaches the 10% figure, poisoning would take place on prairie dog towns within the allotment, even if management objectives have not been reached.

Implementation - Prairie Dog Management

These management actions would be the same as those discussed in Alternative A.

In addition, new towns would be allowed in the 7km Complex as long as the total acres of prairie dog towns on BLM land does not exceed 12,105 acres. New prairie dog towns outside the 7km Complex in the Phillips RA and all new towns in the Valley and Judith RA would be allowed to expand until they meet management objectives.

Implementation - Black-footed Ferret Management

BLM would provide habitat on 12,105 acres of BLM land for black-footed ferret reintroduction in the Phillips RA (see Figure 2.12). Reintroduction could include portions of the CMR and may also include 2,005 acres of state and 5,660 acres of private land. The towns identified for reintroduction, the 7km Complex, based on FWS habitat assumptions for ferret management (i.e. the area encompasses a group of prairie dog towns that are no more than 7 km apart and at least 5 hectares in size).

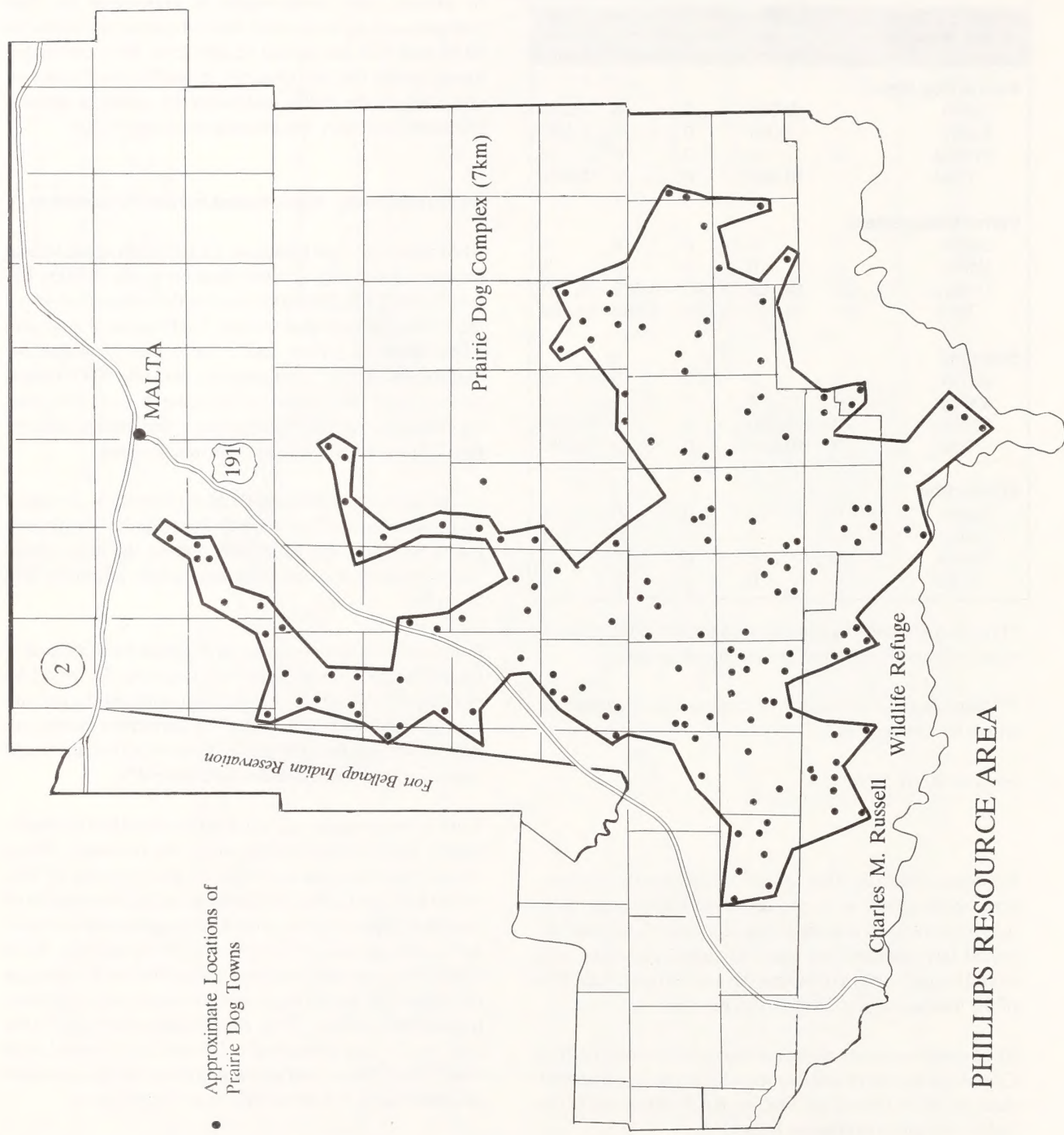
A core area(s) on CMR and BLM land would be the initial reintroduction site for the black-footed ferret. Prairie dog towns on CMR and BLM land outside the core area(s) would be used to expand the reintroduction within the 7km Complex.

Before reintroduction occurs, all activities on BLM land in south Phillips County (south of Highway 2) would be evaluated to ensure impacts to a future reintroduction are assessed and mitigated. After reintroduction occurs, all activities which may impact the ferret or its habitat would require informal consultation with the FWS.

Some activities near prairie dog towns identified for black-footed ferret reintroduction would be restricted. These towns would be avoidance areas for above ground ROWs; would have no further development or implementation of livestock improvements; would not be grazed by livestock and would be closed to ORV use. When feasible, BLM would use mechanical treatments elsewhere in an allotment to compensate for the vegetation loss associated with these livestock restrictions. These restrictions would apply to the core prairie dog towns and a 1/4-mile area around each town. The 3,306 acres of prairie dog towns involved include an additional 2,774 acres for a total of 6,080 acres.

Some activities associated with the important towns (secondary core towns) outside the core area(s) but inside the 7km Complex would also be restricted. This would exclude above ground rights-of-way within 1/4-mile of these towns, implement seasonal restrictions on livestock grazing, restrict the development and implementation of livestock improvements, and restrict ORV use yearlong.

Figure 2.12 Prairie Dog Towns/Black-footed Ferret Management - Alternative D.



Oil and gas leasing within the 7km Complex would be restricted. Surface occupancy and use would be prohibited to protect the black-footed ferret reintroduction area (see Appendix B).

Implementation - Prairie Dog Shooting

BLM would manage prairie dog shooting on BLM land in the Phillips RA. BLM would respond to requests for information, prepare maps, sign prairie dog towns and manage the towns to provide for shooting. Prairie dog shooting may be restricted to a certain number of shooters each year to allow for a quality experience. Shooting would be allowed, but not managed, in the Valley and Judith RAs.

Judith Mountains Scenic Area ACEC

BLM would designate 4,566 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect the scenic, wildlife and recreation values in the Judith (3,702 acres) and South Moccasin (864 acres) Mountains (see Supplemental Color Map B at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. This area would be managed to mitigate impacts to resources from surface disturbing activities.

Implementation

Activities would not be allowed which could not meet visual contrast rating requirements for VRM Class II areas.

BLM would pursue a protective withdrawal which segregates this area from mining claim location to protect the scenic values. Validity exams would be conducted on claims when a Plan of Operations is filed. BLM would pursue purchasing valid mining claims. Plans of Operations would be subject to the mitigating measures in Alternative C.

ORV use would be restricted yearlong to designated roads and trails. The area would be open to oil and gas leasing with a No Surface Occupancy restriction and would be an avoidance area for ROWs. The area would be available for restricted management of forest products.

Acid Shale-Pine Forest ACEC

BLM would designate 3,619 BLM acres within the Acid Shale-Pine Forest range an ACEC and prepare an activity plan to identify specific management actions to protect an endemic plant community unique to the area (see Supplemental Color Map C at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands

administered by BLM. This area contains four tracts of BLM land; War Horse, Briggs Coulee, Chippewa Creek, and Ford's Creek. The four tracts would be designated an ACEC to prevent elimination of the entire unit in case of a catastrophic event such as fire.

Implementation

The area would be open to oil and gas leasing with No Surface Occupancy restrictions. All areas would be withdrawn from mining claim location to protect the sites from possible bentonite mining. Livestock grazing would be eliminated from the War Horse tract and continued at present levels in the others. The War Horse tract would be closed to ORVs. The use or sale of forest products would be prohibited, unless necessary for stand preservation.

Square Butte Outstanding Natural Area ACEC

BLM would designate 1,947 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect natural endemic systems, cultural sites, scenic qualities and rare geologic features unique to Montana (see Supplemental Color Map A at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. This area would be managed primarily for wildlife and recreational purposes.

Implementation

Legal access would be acquired to the area for a trailhead as well as a trail network to the Butte. Access should be developed from north or east of the Butte for easy access from the highway. The area would be closed to ORVs.

Square Butte is currently segregated from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964. BLM would pursue a protective withdrawal for Square Butte to segregate the area from mining claim location to protect natural endemic systems, cultural sites, scenic qualities and rare geologic features unique to Montana. The classification would be terminated when the area is withdrawn. The area would be closed to oil and gas leasing.

Surface disturbing activities (transmission lines, roads, communication sites, pipelines, etc.) would be prohibited. Recreation and wildlife habitat management plans would be developed to include hiking, wildlife observation, rock-climbing, hunting, prescribed fire, wildlife reintroduction or supplemental populations, camping, security areas, etc. The sale of forest products from the area would be prohibited, unless necessary for stand preservation.

Collar Gulch ACEC

BLM would designate 1,618 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect a pure strain of westslope cutthroat trout which is a Montana State Species of Special Concern (see Supplemental Color Map D at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. The primary emphasis would be on wildlife habitat protection and improvement for the westslope cutthroat trout population, with some associated non-motorized recreational use.

Implementation

The area would be closed to motorized vehicles, except for the main Judith Peak road and interconnected Big Grassy Peak and Crystal Peak/Collar Ridge access roads. Additional public access to the area would not be pursued to protect natural resource values.

The area would be open to oil and gas leasing with No Surface Occupancy restrictions. BLM would pursue a protective withdrawal to segregate the area from mining claim location to protect a pure strain of westslope cutthroat trout. Plans of Operations would be subject to the mitigating measures in Alternative C. Validity exams would be conducted on claims when a Plan of Operations is filed. BLM would pursue purchase of valid mining claims.

Developments in the area would be designed to protect trout habitat. BLM would initiate a study to identify the source of water quality degradation in the drainage and develop appropriate measures to eliminate or mitigate the degrading source.

Azure Cave ACEC

BLM would designate 479 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect cave resources and potentially the northernmost bat hibernaculum in the United States (see Supplemental Color Map E at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM.

Implementation

BLM would allow cave access from June 15 through August 15. Climbing ropes or a rope ladder would be provided for cave access. A Special Recreation Use Permit would be issued to qualified cavers. BLM would pursue access from Seven Mile road but would limit the quality of the route to an unimproved road. BLM would continue the

withdrawal for Azure Cave to protect public recreation values and the bat hibernaculum.

Big Bend of the Milk River ACEC

BLM would designate 10,720 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect archaeological resources representing bison hunting and prehistoric ceremonial use of the Northwestern Plains (see Supplemental Color Map F at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM.

Implementation

BLM would consult with appropriate Native Americans to ensure that the activity plan is developed with sensitivity to Native American cultural values.

Land within the ACEC would be inventoried for cultural resources and cooperative agreements would be pursued to develop the scientific use of selected cultural resources. Development of the Henry Smith Site would include roads, walking paths and interpretative signs for visitor information.

ORVs would be restricted yearlong to designated roads and trails. The area would be open to oil and gas leasing with No Surface Occupancy restrictions. BLM would pursue a protective withdrawal to segregate this area from mining claim location and withhold the area from solid mineral leaseables to protect the area from any possible bentonite mining.

ALTERNATIVE E (The Preferred Alternative)

This alternative reflects changes based on public comments received on the Preferred Alternative identified in the draft RMP/EIS. If selected, this alternative plus the guidance in the Management Common To All Alternatives section would form the RMP.

Land Acquisition and Disposal

BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM recognizes and respects private property rights and would not use condemnation to implement land tenure adjustment under this land use plan. Acquisitions could include private, state or other land that would meet the objectives of the State Director's Guidance on Land

Pattern Review and Land Adjustment (1984) and the criteria in Appendix A. Private, state and other lands meeting the criteria in Appendix A would be in conformance with this land use plan. The main objective would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability. Lands acquired would have multiple resource values such as access, riparian-wetland areas, ACECs, recreation and wildlife habitat.

A total of 161,968 acres of BLM land would be available for disposal (see Table 2.33, Appendix A and Map 2 in the back of this document). The lands identified for disposal would be available for exchange. These lands may also be available for sale to facilitate an individual land exchange or meet other plan objectives. For purposes of sale, these lands meet FLPMA disposal criteria Sec. 203(a)(1). BLM land identified for disposal would be subject to further site specific evaluation and if significant values are found they may be retained under BLM management. An environmental analysis and Notice of Realty Action would be completed for each disposal action. Areas not identified for disposal would be managed for long-term public ownership.

**TABLE 2.33
ALTERNATIVE E
(PREFERRED ALTERNATIVE)**

BLM LAND AVAILABLE FOR DISPOSAL

Resource Area	Acres
Judith	
Chouteau County	6,386
Fergus County	37,836
Judith Basin County	2,366
Petroleum County	17,370
Valley	34,089
Phillips	63,921
Total	161,968

Source: BLM, 1990

Implementation

During any purchase or exchange action, BLM would attempt to maintain the respective county tax base and allow no overall net gain in BLM land over the life of this plan. BLM would monitor land tenure adjustments to identify potential problems in achieving this objective. BLM land may be sold to facilitate a purchase or exchange action or maintain the respective county tax base.

As opportunities arise, BLM would evaluate land exchanges involving private and state inholdings within the CMR on a case-by-case basis.

Acquisitions could occur by exchange or purchase through negotiation with willing landowners. Exchange would be the primary method of acquisition and may include BLM land within or outside the planning area.

Access to BLM Land

Access would be pursued to BLM land where no legal public access exists and/or where additional access to major blocks of BLM land is needed utilizing existing laws, regulations and guidelines while recognizing private property rights. This includes preserving and improving access to BLM land. During activity planning and/or route analysis, access may be defined as foot, horse or vehicular. Access would be confined to as narrow a corridor as is necessary to serve such purpose. Access would provide for improved land management and use by the public for hunting, camping, picnicking and other activities.

BLM has identified 71,793 BLM acres as needing new legal public access and 1,126,858 BLM acres needing additional access (see Table 2.34 and Appendix L). Map 3, in the back of this document, shows the areas for new and additional public access. The New Year Peak, Pyramid Peak, Armells Headwaters, Chicago Gulch, Fox Peak, Lewis Peak, Lookout Peak, Black Butte, Square Butte, North and South Moccasin Mountains, and the Judith and Missouri Breaks areas would be priority areas for increasing legal public access.

**TABLE 2.34
ALTERNATIVE E
(PREFERRED ALTERNATIVE)**

**ACRES OF BLM LAND NEEDING NEW
AND ADDITIONAL LEGAL PUBLIC ACCESS**

Resource Area	New Access	Additional Access
Judith	67,740	231,260
Valley	13	72,860
Phillips	4,040	822,738
Total	71,793	1,126,858

Source: BLM, 1990

BLM would support the public road network, primarily county roads, leading to BLM land by establishing limited cooperative agreements for maintenance with the respective counties. BLM roads or trails would be extended and/or upgraded to reflect public access needs.

Implementation

Transportation planning would identify additional areas for access and road extension or upgrading.

Access goals would be accomplished in accordance with existing laws, BLM regulations and guidelines. The primary method of access would be negotiation of easements or land exchanges. Other methods include, but are not limited to cooperative agreements, Land and Water Conservation Fund acquisitions, patent reservations or as a last resort, condemnation.

Signs would be installed and maintained for public access routes and boundaries.

Off-Road Vehicle Designations

BLM would restrict ORV use on BLM land yearlong or seasonally to designated roads and trails or close specific areas to protect the resource values in ACECs, preserve and protect the wilderness values in the WSAs, protect vegetation and soils to maintain watersheds and water quality, reduce user conflicts, and reduce harassment of wildlife and provide habitat security.

Other BLM land would remain open to ORV use to provide for cross-country travel, including a designated intensive ORV use area for competitive events such as races and rallies.

BLM would designate 1,990,441 BLM acres open, 813,769 BLM acres limited and 1,947 BLM acres closed to ORVs (see Table 2.35).

**TABLE 2.35
ALTERNATIVE E
(PREFERRED ALTERNATIVE)**

**BLM LAND DESIGNATED AS
OPEN, LIMITED, OR CLOSED TO ORVS**

Resource Area	Open	Limited Seasonal	Limited Yearlong	Closed
Judith Valley	324,791	327,576	47,267	1,947
Phillips	787,400	162,000	70,486	0
Total	878,250	166,720	39,720	0
	1,990,441	656,296	157,473	1,947

Source: BLM, 1990

Areas Closed

The Square Butte ONA ACEC would be closed to all motorized vehicle use (1,947 acres).

Areas Limited Yearlong

ORV use in the following areas would be restricted yearlong to designated roads and trails (see Maps 4 and 5 in the back of this document and Supplemental Color Maps G, H and I at the conclusion of Chapter 2).

ORV use in the six WSAs (Bitter Creek, Burnt Lodge, Antelope Creek, Woodhawk, Dog Creek South and Cow Creek) would be restricted yearlong to the existing roads and trails. In those WSAs Congress designates as wilderness, ORV use would be restricted yearlong to cherry-stemmed and boundary roads. All internal trails and ways would be closed to ORV use. In those WSAs Congress determines unsuitable for wilderness ORV travel would be restricted seasonally to designated roads and trails.

ORV use in the Rock Creek Canyon area would be restricted yearlong to provide habitat security and protect vegetation for the watershed (4,586 acres).

The Judith Mountains Scenic Area ACEC would be restricted yearlong to protect the scenic qualities of the visual resources (3,702 acres).

The Acid Shale-Pine Forest ACEC would be restricted yearlong to protect an endemic plant community and reduce water and wind erosion (2,463 acres).

ORV use in the Big Bend of the Milk River ACEC would be restricted yearlong to protect cultural resource values (2,120 acres). Designated roads and trails would be established in an activity plan.

ORV use in the Camp Creek Campground, Montana Gulch Campground and Faraasen Park would be restricted yearlong to protect recreation values (110 acres).

BLM land in the North and South Moccasins and Judith Mountains would be restricted yearlong to reduce user conflicts, reduce wildlife harassment and provide habitat security (27,452 acres).

Areas Limited Seasonally

ORV use in the following areas would be restricted seasonally with vehicle travel restricted to designated roads and trails (see Maps 4 and 5 in the back of this document and Supplemental Color Maps G, H and I at the conclusion of Chapter 2). The seasonal restriction, September 1 through December 1, is based on the big game hunting season. If the hunting season would change, the seasonal restriction would be modified accordingly.

The Missouri Breaks area would be restricted seasonally to protect fragile soils, reduce user conflicts, and maintain and improve water quality. This area includes the southern portion of the Phillips (166,720 acres) and Valley (162,000 acres) RAs and the following areas in the Judith RA: Missouri Breaks, Chain Buttes, Two Calf, Armells Creek, Fargo Coulee, Indian Buttes, Crooked Creek, Dunn Ridge, Dog Creek and Woodhawk (300,871 acres).

ORV use in the Blacktail Coulee and Yellow Water areas would be restricted seasonally to reduce user conflicts and improve water quality (25,225 acres).

Other Areas

BLM land in the Highwoods, Belts and Snowy Mountains would be consistent with the adjacent FS ORV designations: Highwoods, 360 acres limited seasonally and 600 acres open; Belts, 1,120 acres limited seasonally and 1,760 acres open; and Snowies, 400 acres limited yearlong and 9,387 acres open.

Implementation

The following exceptions would apply to the limited designations, except in the WSAs and ACECs:

1. Vehicle access for camping would be permissible within 100 yards of designated roads and trails. Exceptions could be granted on a case-by-case basis through the use of a special use permit.
2. The non-ambulatory handicapped, as defined by Montana Law, would be allowed motorized access off designated roads and trails.
3. Snowmobiles would be allowed off-road travel on BLM land in the Little Belt and Snowy Mountains.
4. Off-road vehicle use would be allowed for game retrieval. In some areas, retrieval may be restricted.

Those roads not designated open within areas limited yearlong would be closed. Roads not designated open within areas limited seasonally would be closed from September 1 through December 1. See Maps 4 and 5 in the back of this document and Supplemental Color Maps G, H and I at the conclusion of Chapter 2 for the ORV travel plan indicating those designations.

Resource damage, changes in landscape and user conflicts would be considered in opening or closing roads and trails in the future. The guide for rating soil impacts from off-road travel would be used as an indicator to revise restrictions (MSO supplement to 7162 BLM Manual - Soil Interpretations). As additional mapping and signing occurs,

the roads and trails designated as open or restricted may change depending on future management needs.

BLM would implement a signing and public outreach program and publish maps that delineate boundaries and travel restrictions. Areas designated as limited would be signed, identifying those roads and trails not open to motorized travel and an explanation of allowed uses.

BLM would pursue cooperative agreements with state and local law enforcement agencies and use BLM law enforcement ranger(s) to monitor and implement restrictions.

Off-road travel for administration of a federal lease or permit would be granted, unless specifically prohibited.

ORV use on newly acquired land would normally be consistent with adjacent areas. Special circumstances may require a change from adjacent conditions. These areas would be mapped and identified for the public.

Intensive ORV Use Area

BLM would designate and manage a 40-acre intensive ORV use area north of Glasgow for motorcycles and ATVs (T. 29 N., R. 39 E., Section 34, NE1/4SE1/4).

Implementation actions would include maps and brochures of the intensive use area, signing, fencing, monitoring and enforcement. Competitive events would require a special recreation use permit.

Other areas for intensive ORV use would be designated if the need arises based on public demand.

Oil and Gas Leasing and Development

BLM would provide for oil and gas exploration and development on BLM land, while protecting other resource values through standard lease terms, stipulations, No Surface Occupancy restrictions or closing areas where resource values are not compatible with exploration and development. The stipulations along with waivers, modifications and exceptions are described in Appendix B.

WSAs would remain closed to oil and gas leasing. In those WSAs Congress determines unsuitable, the appropriate oil and gas lease stipulations would be applied.

A No Surface Occupancy restriction would be placed on oil and gas activities to protect designated critical paleontology sites, R&PP facilities, developed recreation sites, bald eagle nests, piping plover nesting habitat, grouse leks, waterfowl production areas (reservoirs larger than 10 surface acres), riparian-wetland areas, designated fisheries reservoirs and those ACECs designed to protect cultural or wildlife resources.

Seasonal or distance restrictions would be placed on oil and gas activities to protect raptor nests, crucial winter habitat and grouse nesting areas. Controlled surface use stipulations would be applied to protect soils, visual resources and prairie dog towns within black-footed ferret reintroduction areas. A lease notice would be used to inform lessees and operators of the requirements for cultural resource historic preservation compliance.

Table 2.36 shows the acreage that would be subject to standard lease terms, stipulations, No Surface Occupancy restrictions or closed to leasing in high and moderate mineral development potential areas. There are no areas of low development potential within the planning area, except FS land in the Little Belt Mountains. Map 6 in the back of this document identifies the areas subject to standard lease terms, stipulations, No Surface Occupancy restrictions or closed to oil and gas leasing.

**TABLE 2.36
ALTERNATIVE E
(PREFERRED ALTERNATIVE)**

**FEDERAL MINERAL ESTATE SUBJECT TO
STANDARD LEASE TERMS, STIPULATIONS,
NO SURFACE OCCUPANCY
OR CLOSED TO OIL AND GAS LEASING (Acres)**

Resource Area & Oil & Gas Potential	Standard Terms Only	Stipulations*	No Surface Occupancy*	Closed
Judith				
High	16,570	1,920	0	5,150
Moderate	236,190	594,161	3,553	10,047
Valley				
High	62,620	5,220	0	0
Moderate	423,979	574,700	1,600	66,525
Phillips				
High	232,930	92,800	5,150	0
Moderate	502,192	491,625	24,515	36,240
Total				
High	312,120	99,940	5,150	5,150
Moderate	1,162,361	1,660,486	29,668	112,812

*Standard lease terms would also apply to the acreage identified for stipulations and No Surface Occupancy.

Source: BLM, 1990

Implementation

Current leases would continue according to the respective stipulations until they expire. As current leases expire, the areas would come under the management guidelines of this document. The oil and gas management guidance in the Management Common To All Alternatives section of this chapter and Appendix B describes the oil and gas leasing and permitting process.

Hardrock Mining

BLM would provide for hardrock mineral development, while protecting other resources of exceptional value through withdrawal from mineral entry or with special management prescriptions.

BLM would recommend revoking the withdrawals for the Judith Peak and Red Mountain Radar Sites, the Landusky Town Site, Landusky Recreation Site and the Zortman Town Site. There are suspended mining claims within the Judith Peak and Red Mountain Radar Sites that may be validated when the revocation is finalized and will be treated as prior existing rights. BLM would continue the Blacktail Fossil Site, Azure Cave, Camp Creek Campground and Montana Gulch Campground withdrawals. BLM would pursue protective withdrawals for the Big Bend of the Milk River ACEC to protect the area from any possible bentonite mining; and the Zortman Cemetery.

The Square Butte ONA is currently segregated from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964. BLM would pursue a protective withdrawal for Square Butte to segregate the area from locatable mineral entry to protect natural endemic systems, cultural sites, scenic qualities and rare geologic features unique to Montana. The classification would be terminated when the area is withdrawn from mining claim location.

Table 2.37 identifies, by BLM withdrawal, the acreage that would be segregated from mineral entry by high, moderate, low and very low mineral development potential.

**TABLE 2.37
ALTERNATIVE E
(PREFERRED ALTERNATIVE)**

**FEDERAL MINERAL ESTATE THAT WOULD BE
SEGREGATED FROM MINERAL ENTRY (Acres)**

	Total Acres	Hardrock Mineral Development Potential			
		High	Mod	Low	Very Low
Judith RA					
Square Butte					
ONA ACEC	1,947	0	0	0	1,947
Blacktail Fossil					
Site	320	0	0	0	320
Phillips RA					
Big Bend of the					
Milk River ACEC	2,120	0	0	0	2,120
Azure Cave ACEC	140	80	60	0	0
Camp Creek					
Campground	40	0	0	40	0
Montana Gulch					
Campground	60	20	40	0	0
Zortman Cemetery	20	0	0	20	0
Total	4,647	100	100	60	4,387

Source: BLM, 1990

Implementation

The hardrock management guidance in the Management Common To All Alternatives section of this chapter and Appendix C describes the program for surface management of hardrock mineral exploration and development.

Before BLM approves a Plan of Operations on existing mining claims in areas withdrawn, validity examinations would be conducted. If the claims did not contain a discovery, within the meaning of the mining laws, the claims would be declared null and void and the Plan of Operations would be denied. BLM would consider purchasing valid claims where activities threaten the resource values protected by the withdrawal.

To ensure orderly development of mineral resources while protecting other resource values, mitigating measures explained in the following section would be applied to Plans of Operation in the Judith Mountains Scenic Area ACEC, elk habitat in the Judith and North Moccasin Mountains and bighorn sheep habitat in the Little Rocky Mountains. Mitigating measures would be applied to prevent unnecessary or undue degradation.

Management Prescriptions for the Judith Mountains Scenic Area ACEC

Recognizing that conformance to VRM II standards will be consistent with rights granted to the public and the mining claimant under the mining law, the RMP provides an operator with examples of mitigation that may be applied to exploration and mining activity within the ACEC. Upon review of a specific 3809 Plan of Operations, the standard of “unnecessary or undue degradation” (43 CFR 3809.0-5(k)), which includes consideration of visual resources, will be examined. If the operator can meet the standard, the plan will be approved. Special prescriptions would be considered during the Plan of Operations approval process and could include:

1. Alternate methods of exploration access, rather than the traditional construction of drill roads by dozer, for reconnaissance level exploration if conventional methods could not be reclaimed to meet VRM standards.
2. Alternate location of mine facilities. Not all lands within the scenic area are visible from Lewistown. Foreground ridges could totally or partially screen operations from view at some locations.
3. Limiting the individual size/amount of a particular disturbance. Several smaller sized waste rock dumps, heaps or other facilities may be preferable to a large single unit in an effort to meet VRM II goals.

4. Examining feasibility of pit backfilling (to some degree) or pit reconfiguration in an effort to conform to the scenic values visible from the City of Lewistown.
5. Exceeding VRM II standards under an approved exploration/mining Plan of Operations, with emphasis on conformance upon final reclamation.
6. Reclamation concurrent with exploration and mining to minimize visual impacts.

Operators are encouraged to submit conceptual plans and initiate discussions with BLM early in the project design phase for assistance in preparing a Plan of Operations that conforms with management objectives in the scenic area.

Management Prescriptions for Elk and Bighorn Sheep Habitat

1. Seasonal restrictions would be placed on exploration during crucial wildlife periods (December 1 through March 31) on a case-by-case basis to prevent unnecessary or undue degradation.
2. Concurrent reclamation would be emphasized to keep simultaneous disturbance to a minimum, thereby reducing wildlife habitat loss.
3. Reclamation would utilize plant species suitable for wildlife forage if slope stability and revegetation concerns can be satisfied.
4. Wildlife proof fences would be required around solution ponds to prevent wildlife mortality.
5. Off-site compensation would be considered to mitigate crucial habitat loss. This may include habitat improvement or replacement with comparable sites.
6. Off-site water would be developed if needed to draw wildlife from active mining sites.

Riparian and Wetland Management of Watersheds

BLM would maintain and/or improve the riparian-wetland areas in existing, proposed, and potential AMPs along with wetlands in non-AMP areas based on proper functioning condition and desired plant community (see Appendix J). Ranking would be based on site potential as determined by intensive inventories in the Prairie Potholes and Northern Great Plains Regions. It may be necessary to recategorize Category M and C allotments if significant riparian or wetland values are present and need improvement.

The first objective would be to improve or maintain riparian-wetland areas to proper functioning condition. The second objective would be to achieve or maintain the desired plant community to provide wildlife habitat, increase waterfowl habitat by 30%, improve watershed conditions, and to comply with the nonpoint source water pollution section of the Clean Water Act. As new AMPs are written, existing AMPs revised, or through monitoring specific riparian-wetland objectives would be included.

BLM would initially accomplish riparian-wetland objectives through livestock grazing methods at current stocking levels. If grazing methods are not successful in meeting management objectives, BLM would take the necessary action to achieve those objectives. This could include, but is not limited to, fencing riparian-wetland areas, reducing livestock numbers and use, and rehabilitating degraded riparian-wetland areas. When trend is improving, the prescribed grazing method should be continued even if the riparian-wetland objectives are not achieved in the stated time frame.

To accomplish the above riparian-wetland objectives BLM would consider the importance of the intermingled private lands, including valuable riparian-wetland areas, which could be adversely impacted as a result of management changes on BLM land.

After riparian-wetland objectives are met, BLM would allocate any forage increases within riparian-wetland areas to watershed, wildlife and livestock.

Table 2.38 shows the number of allotments, miles of stream and number of water sources on BLM land under the Preferred Alternative. The number of water sources is based on the reservoirs, potholes and springs with water rights. Intensive riparian-wetland inventories would update this information through plan maintenance.

TABLE 2.38 ALTERNATIVE E (PREFERRED ALTERNATIVE) NUMBER OF ALLOTMENTS, MILES OF STREAM AND NUMBER OF WATER SOURCES WITHIN ALLOTMENTS MANAGED FOR RIPARIAN AND WETLAND VALUES			
Resource Area	Number of Allotments*	BLM Land	
		Miles of Stream	Water Sources
Judith	76	150	328
Valley	89	250	1,285
Phillips	183	195	4,237
Total	348	595	5,850

*Portions of several allotments in the Judith and Phillips RAs are within the UMNWSR Corridor.

Source: BLM, 1990

Implementation

As new AMPs are written, existing AMPs revised or through monitoring specific objectives consistent with the plant community types described by the Montana Riparian Association would be developed. The objectives would include two aspects; proper functioning condition; desired plant community. Descriptions of the desired riparian-wetland plant communities would include the amount of seedling, sapling, pole, mature, dead and decadent woody species on sites with the potential. Regeneration of herbaceous riparian-wetland vegetation would also be included in management objectives based on site potential and the desired plant communities. The desired condition or health of the areas would be described, as well as the desired ecological status.

The proper functioning condition objective would include the following statement: "Sufficient plant residue would be left in the primary flood plain to protect stream banks during run-off events and provide for adequate sediment filtering, and dissipation of flood water energy." Grazing methods would be designed to protect stream banks from unacceptable shearing and trampling.

To achieve the proper functioning condition objective more specific utilization standards may be incorporated into AMPs. Utilization standards would be based on key species to ensure grazing use is consistent with other resource values and objectives including water quality, recreation and wildlife.

Grazing methods to be implemented include but are not limited to:

1. Hot season grazing deferment,
2. Creation of separate riparian pastures,
3. Changes in kind and class of livestock,
4. Time control grazing, and
5. Other range management practices such as development of off-site water, salting, developing shade sources, herding, insect control or early use pastures.
 - a. All spring developments would be fenced if needed to protect associated riparian vegetation.
 - b. Salt and mineral blocks and supplemental feeding would only be allowed at least 1/4-mile or further from riparian-wetland areas where possible.
 - c. Water developments would be built away from stream riparian-wetland areas where possible.
6. Study exclosures would be put in place on key areas and areas representative of common riparian-wetland types and types about which there are questions, to compare management progress, demonstrate the values of proper management, and confirm potential and

recovery rates. This would be a cooperative effort with permittees or lessees.

The above grazing management practices are consistent with those described in the Montana Riparian Association publication "Riparian Dominance Types of Montana" Hansen, Chadde and Pfister, 1988. As new information or techniques become available the suitability for application to BLM land would be considered and adopted if appropriate.

Seeding, planting and installing rock gabions and/or check dams may be used to meet riparian objectives in addition to grazing methods.

BLM would implement livestock grazing formulas to maintain or improve waterfowl nesting cover on allotments with existing or potential waterfowl production areas.

To improve waterfowl production, BLM would construct six to eight satellite water bodies of 2 to 3 surface acres within 1.5 miles of existing perennial water bodies greater than 10 surface acres. BLM would also construct perennial water bodies (40% of which must be at least 3-feet deep) within 1.5 miles of an existing cluster (four to five) of satellite water bodies.

BLM may fence specific existing and new waterfowl and fishing reservoirs to establish or protect shoreline vegetation for a perimeter of a minimum of 100-feet around the high water line. Periodic, short-term grazing of fenced enclosures may be allowed, if necessary, to maintain or improve wetland habitat.

BLM would comply with all requirements for any insecticide or herbicide use within the wetlands complex (aquatic and terrestrial habitat). Land treatments and prescribed fire would not be allowed except as required for wildlife habitat management objectives. Mechanical land treatments may be implemented on soil subgroups 1, 2, 10 and 11 containing predominately blue grama and club moss vegetation, to improve waterfowl nesting cover.

BLM would negotiate with the BR to modify the current Milk River MOU to make water availability for waterfowl as flexible as possible, e.g. drill artesian wells to augment flows to the Milk River which would offset water which is stored in reservoirs built on ephemeral streams. Water developments, including drilling artesian wells, would require a site-specific environmental assessment.

Elk and Bighorn Sheep Habitat Management

BLM would provide 593,980 acres of habitat on BLM land for elk in the Missouri Breaks, Highwood Mountains, Square Butte, Little Belt Mountains, Judith Mountains, and Little and Big Snowy Mountains (see Table 2.39 and Figure

2.13). This would be consistent with the 1992 MDFWP Elk Management Plan.

BLM would provide 156,930 acres of habitat on BLM land to maintain and expand bighorn sheep in the planning area (see Table 2.39 and Figure 2.13). This would also allow for new bighorn sheep populations in unoccupied habitat, where suitable forage is available, in the Larb Hills area and the Missouri Breaks Bull Creek area.

TABLE 2.39 ALTERNATIVE E (PREFERRED ALTERNATIVE) ACRES OF ELK AND BIGHORN SHEEP HABITAT ON BLM LAND		
Resource Area	Elk Habitat	Bighorn Sheep Habitat
Judith	410,796	66,187
Valley	50,806	25,902
Phillips	132,378	64,841
Total	593,980	156,930

Source: BLM, 1990

Implementation

Vegetation management, including allocations for watershed, wildlife, and grazing, is discussed in the Management Common To All Alternatives section of Chapter 2.

Except in the Little Rocky Mountains, ORV use within elk and bighorn sheep habitat would be restricted seasonally to designated roads and trails to reduce wildlife harassment and provide habitat security (see the ORV section of this alternative).

BLM would plant lure crops on BLM land where determined to be necessary and feasible to draw elk from private crop land where depredation conflicts are occurring. Planting lure crops would be considered for small areas and management to protect lure crops could include fencing, grazing methods, or a change in season of use for livestock. Planting and maintenance of lure crops would be most feasible under a cooperative arrangement with MDFWP, other organizations or individuals.

These areas would be leased for oil and gas with a seasonal stipulation to protect crucial winter range.

Domestic sheep grazing would not be allowed to overlap bighorn sheep habitat to ensure no contact between domestic and bighorn sheep. This would prevent the spread of infectious diseases.

The following mitigating measures would be applied to prevent unnecessary or undue degradation on Plans of Operation within elk habitat in the Judith and North Moccasin

Figure 2.13 Elk and Bighorn Sheep Habitat - Alternative E.

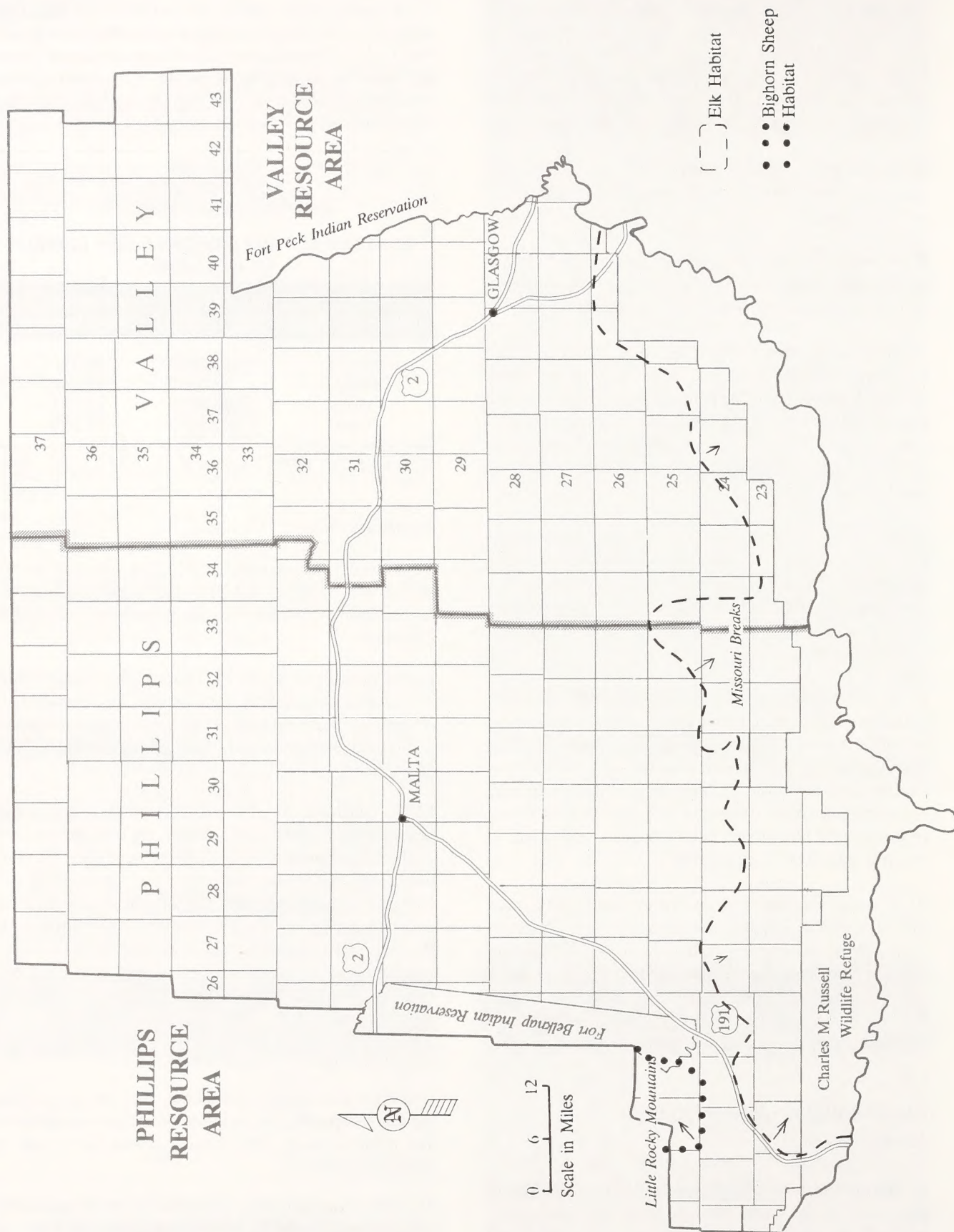
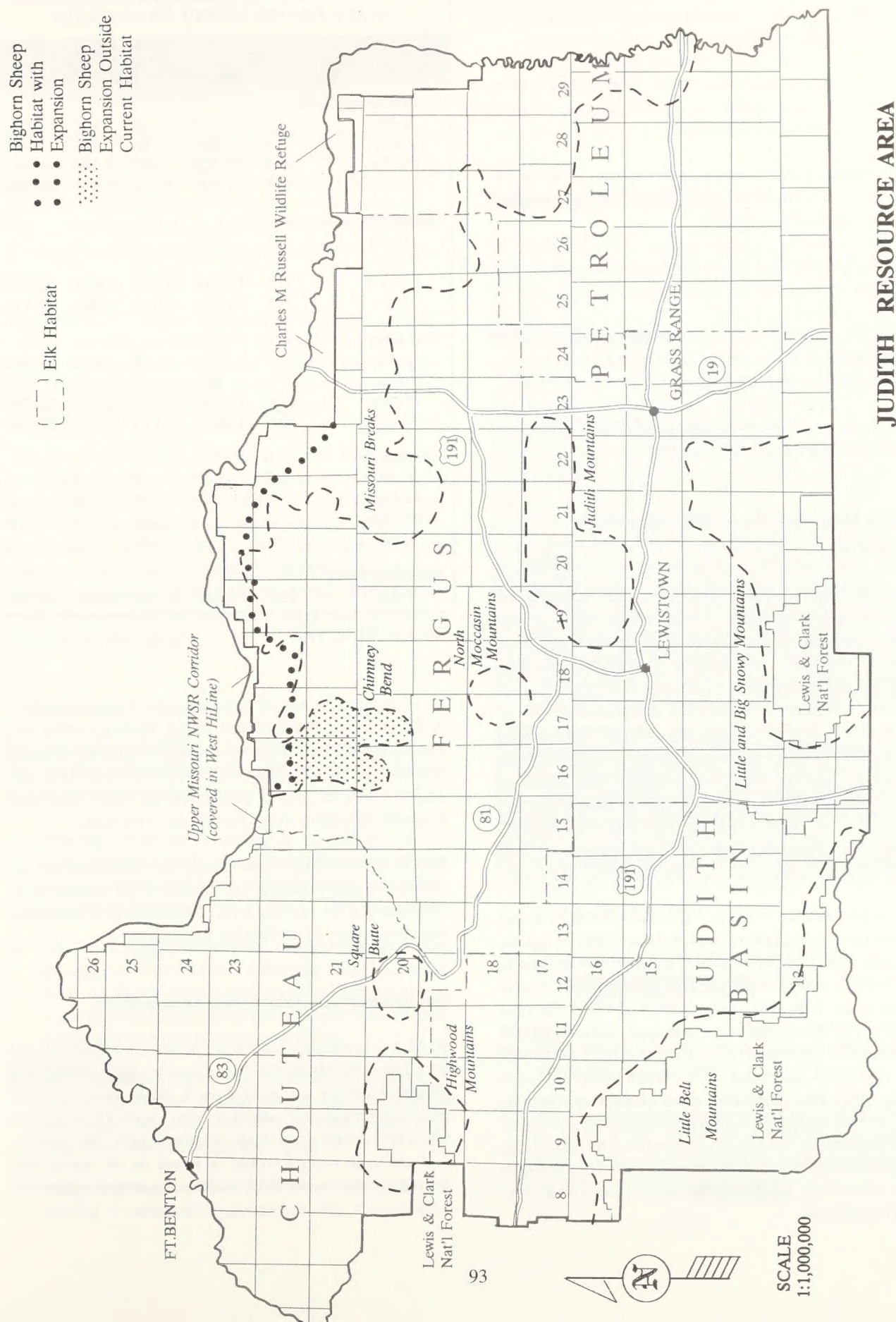


Figure 2.13 Elk and Bighorn Sheep Habitat - Alternative E. (continued)



Mountains and bighorn sheep habitat in the Little Rocky Mountains:

1. Seasonal restrictions would be placed on exploration during crucial wildlife periods (December 1 through March 31) on a case-by-case basis to prevent unnecessary or undue degradation.
2. Concurrent reclamation would be emphasized to keep simultaneous disturbance to a minimum, thereby reducing wildlife habitat loss.
3. Reclamation would utilize plant species suitable for wildlife forage if slope stability and revegetation concerns can be satisfied.
4. Wildlife proof fences would be required around solution ponds to prevent wildlife mortality.
5. Off-site compensation would be considered to mitigate crucial habitat loss. This may include habitat improvement or replacement with comparable sites.
6. Off-site water would be developed if needed to draw wildlife from active mining sites.

Prairie Dog and Black-Footed Ferret Management

BLM would provide prairie dog habitat for black-footed ferret reintroduction and long-term ferret recovery, associate species (mountain plover, burrowing owl, and ferruginous hawk), recreational viewing, and prairie dog shooting. Prairie dog towns on BLM land identified for reintroduction of the black-footed ferret would be designated an ACEC (12,346 acres). This habitat may also help prevent the need for listing of the mountain plover, burrowing owl and ferruginous hawk as threatened or endangered. If one of these species would become listed, BLM would consult with the FWS to assure this RMP meets the habitat needs. If this plan would not meet those needs, BLM would amend this RMP.

BLM, in cooperation with the FWS and MDFWP, would maintain the existing prairie dog habitat and distribution on BLM land within the 7km Complex based on a 1988 survey. BLM would also support cooperative agreements for prairie dog towns on CMR, DSL, and private land within the 7km Complex. The 7km Complex contains approximately 26,000 acres of prairie dog towns (12,346 BLM acres, 5,800 CMR acres, 2,012 DSL acres and 5,821 private acres) as shown on Map 7 in the back of this document. Management actions would be directed to cooperatively maintain this amount of prairie dog habitat. Table 2.40 summarizes the prairie dog and black-footed ferret management activities and acreages in this alternative. Appendix K lists the allotments that would be affected.

**TABLE 2.40
ALTERNATIVE E
(PREFERRED ALTERNATIVE)**

SUMMARY OF PRAIRIE DOG AND BLACK-FOOTED FERRET MANAGEMENT

Prairie Dog Mgmt.					
Judith	7	71	0	112	183
Valley	11	800	40	120	960
Phillips	235	13,220	2,070	6,356	21,646
Total	253	14,091	2,110	6,588	22,789
Ferret Management					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	211	12,346	2,012	5,821	20,179
Total	211	12,346	2,012	5,821	20,179
Shooting					
Judith	7	71	0	112	183
Valley	11	800	40	120	960
Phillips	235	13,220	2,070	6,356	21,646
Total	253	14,091	2,110	6,588	22,789
Elimination					
Judith	0	0	0	0	0
Valley	0	0	0	0	0
Phillips	0	0	0	0	0
Total	0	0	0	0	0
Planning Area					
Total	253	14,091	2,110	6,588	22,789

Source: BLM, 1990

A Cooperative Black-footed Ferret Reintroduction and Management Plan would be developed with the affected landowners, BLM, CMR, MDFWP, DSL and FWS. The 12,346 acres of prairie dog towns on BLM land may fluctuate according to the guidelines in the plan.

Prairie dogs on BLM land outside the 7km Complex are non-essential to black-footed ferret recovery and would be maintained at the existing level (1988 survey) or controlled based on values other than the ferret.

Implementation - Prairie Dog Management

BLM would monitor prairie dog towns for expansion and all allotments within the 7km Complex with prairie dog towns would be categorized as I. BLM would control prairie dog expansion within the 7km Complex by allotment when the acreage exceeds the existing level (1988 survey). A decision to control would be based on the prairie dog town distribution and density within the area of expansion.

In the Phillips RA, BLM would maintain the prairie dog towns on BLM lands outside the 7km Complex at the existing level for recreational viewing, associate species, and prairie dog shooting. BLM may reduce or eradicate some small isolated prairie dog towns.

BLM would maintain or manage prairie dog towns on BLM lands in the Valley (800 acres) and Judith (71 acres) RAs, based on the values or problems encountered.

Management actions would follow guidance in the Cooperative Black-footed Ferret Reintroduction and Management Plan to avoid taking ferrets and may include using EPA registered toxicants or non-toxic methods for prairie dog control (i.e. barriers, water, vegetation enhancement, prairie dog sterilization, biological control, etc.).

When poisoning is scheduled on a prairie dog town which includes state and private land, a cooperative effort would be made to control the entire town. The cost of poisoning for state and private land would be the responsibility of the private landowner or the state land permittee.

The loss of prairie dog habitat on private land may be compensated for by developing additional habitat on BLM land in the vicinity of the habitat loss. Prairie dog expansion within the 7km Complex above the existing level (1988 survey) would not be allowed on BLM land without AUM mitigation. Any loss of livestock forage due to prairie dog habitat increases on BLM land above the existing level (1988 survey) would be mitigated through land treatments (mechanical, fire, etc.).

Implementation - Black-footed Ferret Management

The following guidelines would be addressed when developing the Cooperative Black-footed Ferret Reintroduction and Management Plan:

1. Funding would be identified to support the black-footed ferret reintroduction effort and to cooperatively manage prairie dog towns at the existing level (1988 survey) on BLM land.
2. The RMP may be amended to address prairie dog management on BLM land within the 7km Complex if there is a change of status for any associated species or a modification of the Cooperative Black-footed Ferret Reintroduction and Management Plan.
3. BLM prefers the option of initial releases of black-footed ferrets on habitat within the CMR with subsequent releases on BLM land when prairie dogs have been reduced to the 1988 level.
4. All prairie dog towns in joint ownership would be subject to cooperative agreements for management

and/or control consistent with guidelines provided in this RMP.

5. If the loss of prairie dogs on private land voids a portion of the 7km Complex, prairie dog towns on BLM land within the voided area would be subject to cooperative agreements for management and/or control, consistent with guidelines provided in this RMP.

The following restrictions would apply to activities associated within the 7km Complex:

1. Powerline ROWs would be located to avoid prairie dog towns and discourage raptor perching.
2. Oil and gas leasing would be allowed with Controlled Surface Use Stipulations on prairie dog towns within the 7km Complex. When an oil and gas activity is proposed, the authorized officer of the BLM is responsible for applying conditions of approval to prevent adverse effects on the reintroduction and recovery of black-footed ferrets. The "Draft Guidelines for Oil and Gas Activities in Prairie Dog Ecosystems Managed for Black-Footed Ferret Recovery," FWS, 1990, would guide the development of appropriate conditions of approval for the proposed activity.

Waivers, exceptions and modifications to these stipulations would be allowed for activities that are determined to have no adverse effect on the integrity of ferret habitat for purposes of reintroduction and recovering black-footed ferrets. The BLM authorized officer would coordinate with the Montana Black-Footed Ferret Coordination Committee (MBFCC) before making a final decision on waiving, exception, or modifying the stipulation.

3. Animal damage control on prairie dog towns within the 7km Complex would be allowed. Restrictions on the placement of M44s, traps and snares would be necessary to avoid accidentally taking black-footed ferrets.
4. Recreational activities (camping, sight seeing, etc.) would be allowed and managed to prevent adverse impacts to the ferret.
5. Controlling ferret predators and monitoring for ferret diseases in specific locations within the 7km Complex may be necessary.
6. BLM would maintain the existing livestock AUMs within the 7km Complex.
7. A public education program would be jointly developed by FWS, CMR, MDFWP and BLM to explain the ferret management effort and to minimize any potential problems (i.e. distemper, etc.).

Implementation - Prairie Dog Shooting

BLM would manage prairie dog shooting on BLM land in the Phillips RA before and after ferret reintroduction. BLM would respond to requests for information, prepare maps, sign prairie dog towns and manage the towns to provide shooting. Shooting may be regulated to a certain number of people each year to allow for a quality experience.

Prairie dog shooting may temporarily be prohibited on prairie dog towns where black-footed ferret reintroduction is occurring. However, shooting would be managed on these towns and towns subsequently occupied by the ferret, unless impacts from shooting are shown to be detrimental.

Judith Mountains Scenic Area ACEC

BLM would designate 3,702 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect the scenic, wildlife and recreation values in the Judith Mountains (see Supplemental Color Map B at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. This area would be managed to mitigate impacts to resources from surface disturbing activities.

Implementation

Off-road travel would be restricted yearlong to designated roads and trails. The ACEC would be an avoidance area for ROWs. Oil and gas leases would contain a controlled surface use stipulation for visual resources. The area would be available for restricted management of forest products.

The area would remain open to mineral entry. Mitigating measures specific to hardrock mining activities are discussed under the hardrock mining section of this alternative.

Acid Shale-Pine Forest ACEC

BLM would designate two representative BLM tracts, War Horse (817 acres) and Briggs Coulee (1,646 acres), within an Acid Shale-Pine Forest ecosystem a Research Natural Area ACEC and prepare an activity plan to identify specific management actions to protect an endemic plant community unique to the area and a fragile watershed (see Supplemental Color Map C at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. The ACEC would be a Research Natural Area where research would be allowed to determine the effects of grazing, fire, etc. on this type of plant community. BLM would allow research at War Horse and maintain Briggs Coulee as a control site.

Implementation

Disposal of forest products from the area would be prohibited, unless necessary for stand preservation. The area would receive intensive wildfire suppression. ORV use would be restricted yearlong to designated roads and trails. The two ACEC units would be leased for oil and gas with standard lease terms and would remain open to mineral entry.

Square Butte Outstanding Natural Area ACEC

BLM would designate 1,947 BLM acres an ACEC and prepare an activity plan to identify specific management actions to protect natural endemic systems, cultural sites, scenic qualities, rare geologic features unique to Montana and identify key wildlife viewing sites under the Watchable Wildlife Program (see Supplemental Color Map A at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. This area would be managed primarily for wildlife, cultural resources and recreation.

Implementation

Square Butte is currently segregated from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964 (CMU). BLM would pursue a protective withdrawal for Square Butte to segregate this area from mining claim location to protect natural endemic systems, cultural sites, scenic qualities and rare geologic features unique to Montana. The classification would be terminated when the area is withdrawn.

If Congress determines the Square Butte WSA is unsuitable as wilderness and the CMU classification is terminated, the area would then be available for oil and gas leasing. The area would be divided between No Lease and No Surface Occupancy restrictions. The core area would be withheld from leasing. A 1/4-mile perimeter at the outer edge would be leased with No Surface Occupancy restrictions to protect from drainage.

Legal access would be pursued to the ACEC for a trailhead as well as a trail network to the Butte. Access should be developed from the highway east of the Butte or across private land from the northeast. The area would be closed to ORVs.

Surface disturbing activities would be prohibited including transmission lines, roads, communication sites, pipelines, etc.

Recreation and habitat direction for the area would include a trail system, camping areas, a recreation use policy and

habitat management direction for wildlife populations including prescribed fire, security areas, etc. The sale of forest products would be prohibited, unless necessary for stand preservation.

Collar Gulch ACEC

This area would not be designated an ACEC, the area would remain open to mineral entry and current management practices would continue.

Implementation

Current management would include the evaluation of alternate mine operating practices and mitigating measures during technical review and environmental analysis of individual Plans of Operations. The Montana Water Quality Act imposes a nondegradation policy for Collar Gulch Creek.

Azure Cave ACEC

BLM would designate 140 BLM acres an ACEC to protect cave resources and potentially the northernmost bat hibernaculum in the United States (see Supplemental Color Map E at the conclusion of Chapter 2). Designation of an ACEC only applies to public lands administered by BLM. The cave would be managed to protect bats during crucial hibernation periods and allow specific and general recreation use on a limited basis.

Implementation

BLM would prepare an activity plan to determine time periods for cave access and initiate appropriate management activities to protect the bats. Cave access would not be allowed until an activity plan is completed and safe access into the cave is developed.

BLM would continue the withdrawal from mining claim location to protect public recreation values and the bat hibernaculum. The area would be closed to oil and gas leasing, except to protect from drainage if cave resources can be protected.

Additional legal access would be pursued from the Seven Mile road and the quality of the route would be limited to an unimproved road. ORVs would be restricted yearlong to designated roads and trails. An activity plan would identify the roads and trails open in the area.

Big Bend of the Milk River ACEC

BLM would designate 2,120 BLM acres within the Big Bend of the Milk River area, which includes the Henry Smith and Beaucoup Sites, an ACEC and prepare an activity plan to identify specific management actions to protect archaeological resources representing bison hunting and prehistoric ceremonial use of the Northwestern Plains (see Supplemental Color Map F at the conclusion of Chapter 2). The Henry Smith Site would be managed for interpretation and the Beaucoup Site for research. Designation of an ACEC only applies to public lands administered by BLM.

Implementation

BLM would consult with appropriate Native Americans to ensure that the activity plan is developed with sensitivity to Native American cultural values.

ORVs would be restricted yearlong to designated roads and trails. Big Bend would be withdrawn from mineral location and withheld from solid mineral leaseables to protect the cultural resources.

The Henry Smith Site (1,000 acres) would be developed for public and scientific use including interpretation and public education. Land within the site would be inventoried for cultural resources and mapping and/or collecting data would be completed as necessary. Developments would include roads and walking paths with interpretative signs for visitor information. BLM would also pursue public access to the site. The area would be open to oil and gas leasing with No Surface Occupancy restrictions.

The Beaucoup Site (1,120 acres) would be managed for scientific use. Land within the site would be inventoried for cultural resources. All resources would be mapped, collected and excavated as necessary for relevant archaeological data. The area would be open to oil and gas leasing with standard lease terms.

SELECTION OF THE PREFERRED ALTERNATIVE

Four preliminary alternatives (Alternatives A, B, C and D) and a draft preferred alternative (Alternative E) were reviewed for effectiveness in resolving the planning issues, conformance with the guidance established by the planning criteria, avoidance of unnecessary impacts to the human environment, and responsiveness to public concern. Alternative E was developed from the initial analysis of Alternatives A, B, C and D and revised based on the public comments received on the draft RMP/EIS. If selected, this

alternative plus the guidance in the Management Common To All Alternatives section would form the resource management plan. The rationale for selecting Alternative E is presented below by issue.

Land Acquisition and Disposal

Alternative E establishes management direction to accomplish BLM land adjustment. A total of 161,968 acres meet disposal criteria. BLM would concentrate acquisition in areas important for access, riparian-wetland areas, ACECs, recreation and wildlife habitat. The main objective would be to attain a BLM land pattern which balances multiple resource values and brings about better management. This alternative increases BLM's flexibility in accomplishing land adjustment while considering landowner preference to exchange or sell and the effects on the local tax base.

Access to BLM Land

BLM used a citizen's group called a Coordinated Resource Management Plan (CRMP) committee approach on three issues; this being one of them. A CRMP committee composed of interested citizens jointly consider an issue and try to come to a consensus regarding recommendations to resolve the issue. The Preferred Alternative for this issue reflects the recommendations of the CRMP committee.

Alternative E identifies areas of BLM land needing new or additional legal public access. A total of 71,793 BLM acres have been identified needing new legal public access and 1,126,858 BLM acres need additional public access.

This alternative would address the problem of providing legal access to BLM land and the expected increase in recreation use on BLM land. It does not provide access to all BLM land, but only those areas large enough to provide an adequate recreational experience, and that are expected to remain in public ownership. Thus, BLM could utilize resources most effectively and concentrate on the highest priority parcels when acquiring new legal access.

Off-Road Vehicle Designations

Alternative E amends the ORV designations developed under direction of Executive Order 11644. BLM would designate 1,990,501 BLM acres open, 813,709 BLM acres limited and 1,947 BLM acres closed to ORVs. Restrictions would protect the resource values in ACECs and WSAs, protect vegetation and soils to maintain watersheds and water quality, reduce user conflicts, and provide wildlife habitat security. Most restrictions are seasonal in nature and designed to reduce the majority of adverse impacts on resources from off-road vehicle use while recognizing the advantage of off-road travel for certain activities. This

alternative provides exceptions in some limited areas for camping, game retrieval, access by the non-ambulatory, and snowmobile travel in the Little Belt and Snowy Mountains. These designations address resource conflicts and public concerns while recognizing the possible future demands for ORV use on BLM land.

A CRMP committee was also used to help resolve this issue. The CRMP committee focused, for the most part, on Valley County and the problems found there regarding off-road vehicles. The CRMP committee recommended the entire county have an ORV designation limiting motorized vehicles to existing roads and trails, but allow exceptions for game retrieval, camping and handicapped access. This recommendation conflicted with needs in the other resource areas where certain areas had no known conflicts and could be left open. In balancing the CRMP recommendations with the other area needs, BLM expanded limited designations in some areas and reduced the acreage involved in Valley County.

Oil and Gas Leasing and Development

Alternative E would provide for oil and gas exploration and development on BLM land, while protecting other resource values through standard lease terms on 1,474,481 acres, stipulations on 1,760,426 acres, No Surface Occupancy restrictions on 34,818 acres and closing 117,962 acres where resource values are not compatible with exploration and development.

This alternative considers the oil and gas development potential in the planning area along with foreseeable activity when selecting areas open and closed for oil and gas leasing. The BLM choose this alternative to keep as much land as possible open to oil and gas leasing while protecting other resources in the planning area.

Hardrock Mining

Alternative E would provide for hardrock mineral development, while protecting other resources of exceptional value through withdrawal from mineral entry or with special management prescriptions. This alternative considers protective withdrawals for Square Butte ONA ACEC to protect resource values and the Big Bend of the Milk River ACEC to protect cultural resources from possible bentonite mining. Special resource prescriptions would be applied to the Judith Mountains Scenic ACEC.

The alternative considers the hardrock mineral development potential in the planning area along with foreseeable activity when selecting areas open and closed to mining claim location. BLM choose this alternative to leave most of the hardrock development potential lands open to mining claim location. In areas where BLM determined hardrock mining

and other critical resource use was incompatible, other options were infeasible and the best long-term productivity of the land lay with other resources, the land was withdrawn.

Riparian and Wetland Management of Watersheds

Alternative E would provide management for 99% of the stream riparian areas and 92% of the natural and manmade water sources in the planning area. Alternative E would improve or maintain riparian-wetland areas based on proper functioning condition and the desired plant community. This alternative would consider the trend toward meeting this objective, while considering the importance of intermingled private land which could be adversely impacted as a result of management changes on BLM land.

Elk and Bighorn Sheep Habitat Management

Alternative E would provide 593,980 BLM acres of elk habitat and 156,930 BLM acres of bighorn sheep habitat. This alternative would consider methods to address conflicts where crop depredation occurs.

BLM chose this alternative to alleviate wildlife/landowner conflicts and to maintain viable elk and bighorn sheep habitat within the potential of the land to sustain them.

Prairie Dog and Black-Footed Ferret Management

This was the last of the three issues which used a CRMP committee. Members of this CRMP committee included all the ranchers in the recovery area, sportsman's groups, state and federal agencies and interested parties and individuals. The Preferred Alternative reflects the overall direction received from this group.

Alternative E would provide prairie dog habitat for black-footed ferret reintroduction and long-term ferret recovery, as well as provide habitat for associate species (mountain plover, burrowing owl, and ferruginous hawk). Activities such as recreational viewing and prairie dog shooting would also be allowed and managed in a compatible manner with the reintroduction of the ferret. Prairie dog towns on BLM land identified for reintroduction of the black-footed ferret would be designated as an ACEC.

This alternative would address the public's concern about prairie dog expansion by controlling prairie dog towns at the 1988 level. This would also provide habitat for the potential reintroduction of the black-footed ferret and prairie dog shooting without restrictions to other activities.

BLM chose this alternative as it would allow for reintroduction of the black-footed ferret in keeping with the Endangered Species Act, provide for continued existence of prairie dogs and associated species and minimize impacts on local and affected landowners and permittees.

Areas of Critical Environmental Concern

Alternative E designates and provides management guidance for six ACECs in the planning area. BLM surface in the Judith Mountains Scenic Area, Acid Shale-Pine Forest, Square Butte ONA, Azure Cave, Big Bend of the Milk River and prairie dog towns on BLM land identified for reintroduction of the black-footed ferret would be designated as ACECs.

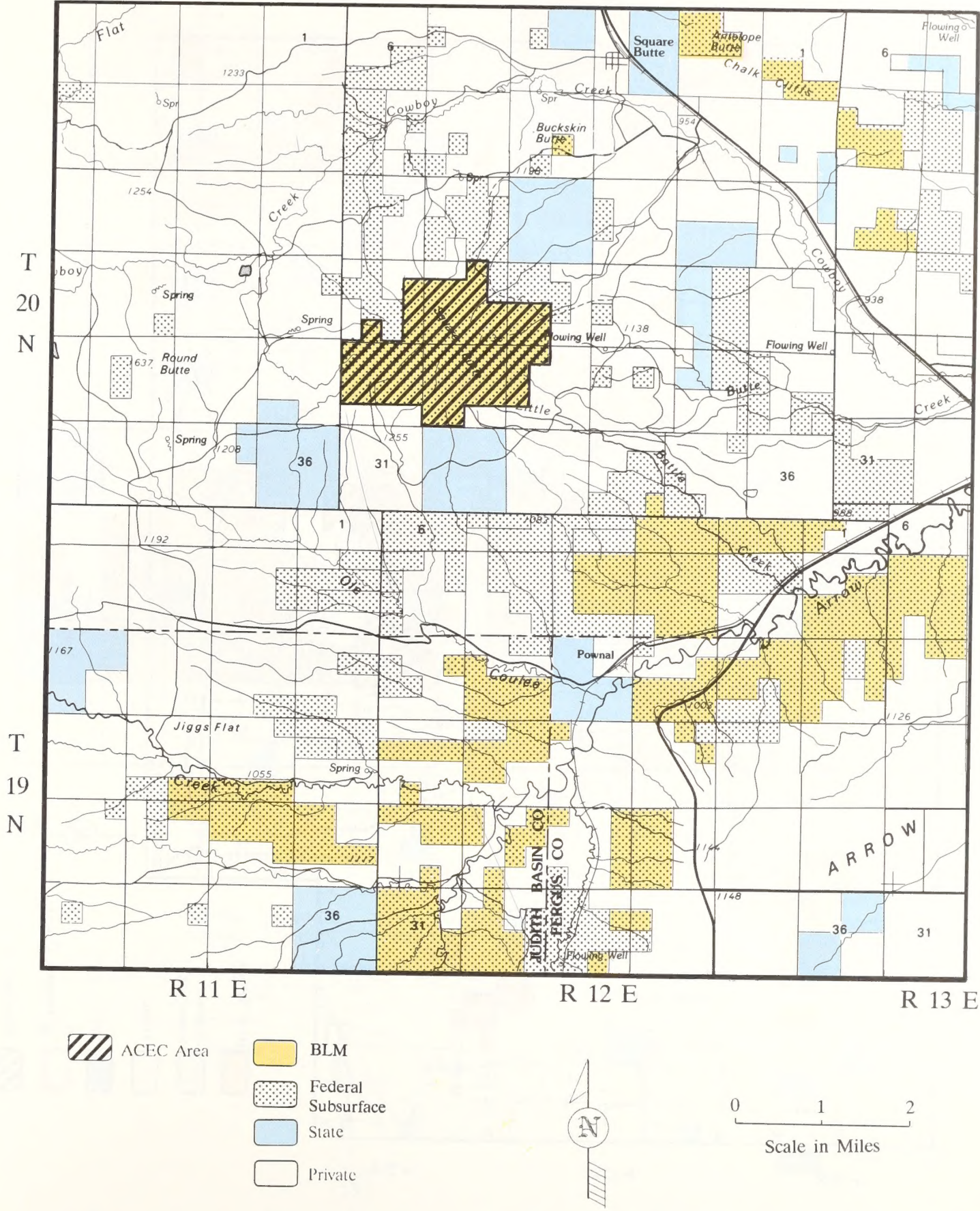
All six areas would be managed to allow multiple use activities while preserving and enhancing the resources for which the areas are designated. Special management in the Judith Mountains Scenic Area would protect the scenic qualities and the visual resources in the Judith Mountains. Special management in the Acid Shale-Pine Forest would protect an endemic plant community unique to the area and a fragile watershed. Special management in the Square Butte ONA would protect natural endemic systems, cultural sites, scenic qualities, and rare geologic features unique to Montana. Special management in Azure Cave would protect the cave resources and potentially the northern most bat hibernaculum in the United States. Special management in the Big Bend of the Milk River would protect archaeological resources representing bison hunting and prehistoric ceremonial use of the Northwestern Plains. Special management for prairie dog towns on BLM land identified for reintroduction of the black-footed would maintain prairie dogs at the 1988 level.

Under the preferred alternative, Collar Gulch would not be designated an ACEC. The area has a high and moderate development potential for hardrock minerals with existing mining claims and a history of mining activity. A withdrawal for Collar Gulch would not eliminate the risk to the westslope cutthroat trout due to existing claims and potential valid mining claims and related mining activity. Management for the area would include the evaluation of alternate mine operating practices and mitigating measures during technical review and environmental analysis of individual Plans of Operations based on the resources present.

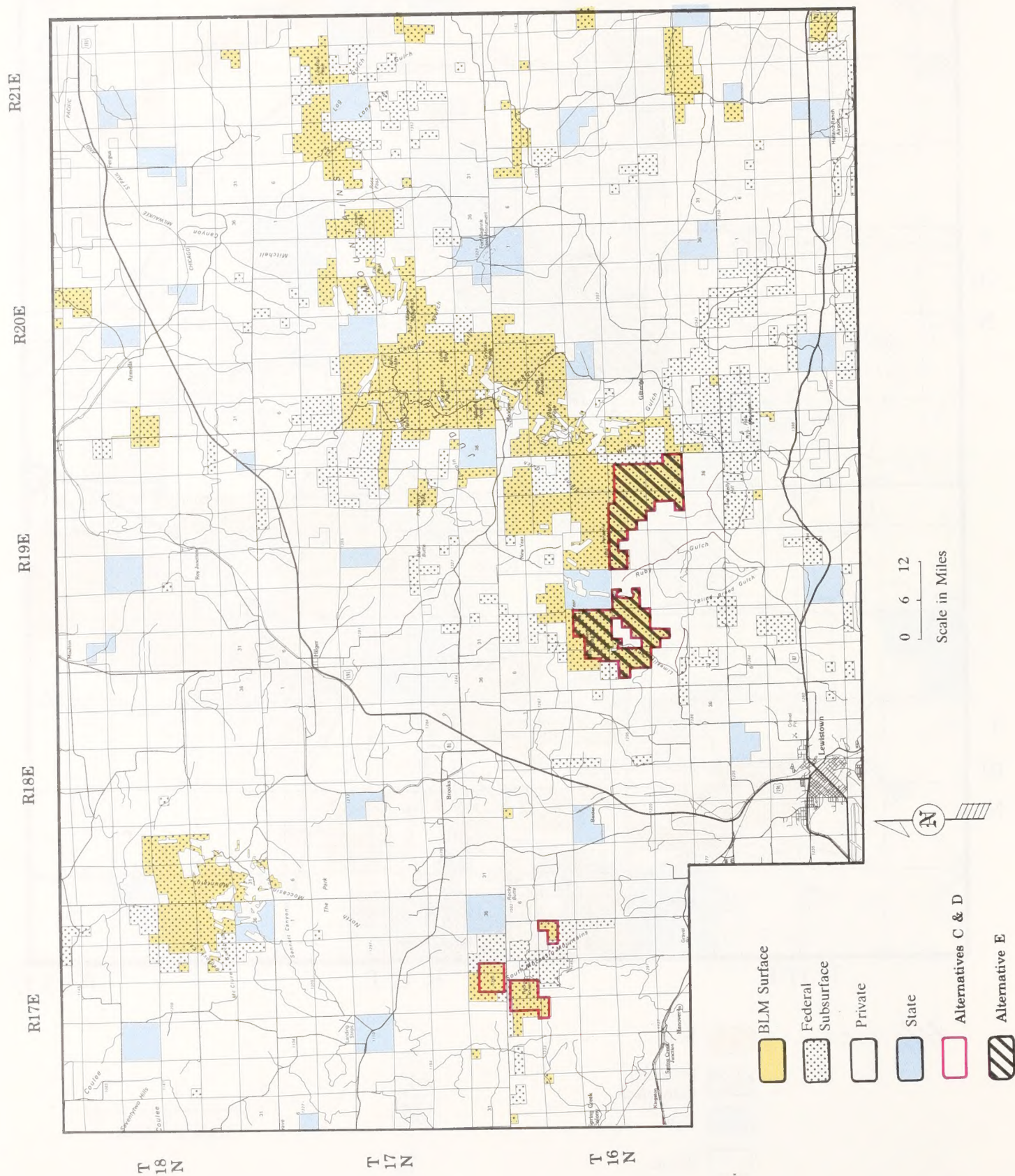
COMPARISON OF ALTERNATIVES

Table S.1 presents a summary of the alternatives to resolve the issues. Table S.2 summarizes the environmental consequences by issue for each alternative. Tables S.1 and S.2 are located in the Summary at the beginning of this document.

Map A Square Butte ONA ACEC.

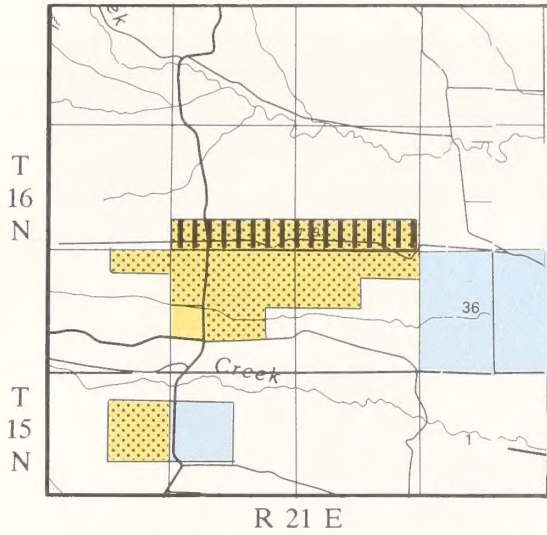


Map B Judith Mountains Scenic Area ACEC.

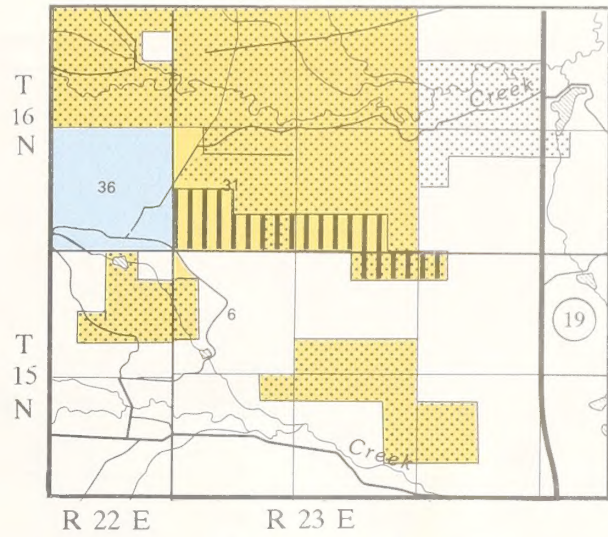


Map C Acid Shale-Pine Forest ACEC.

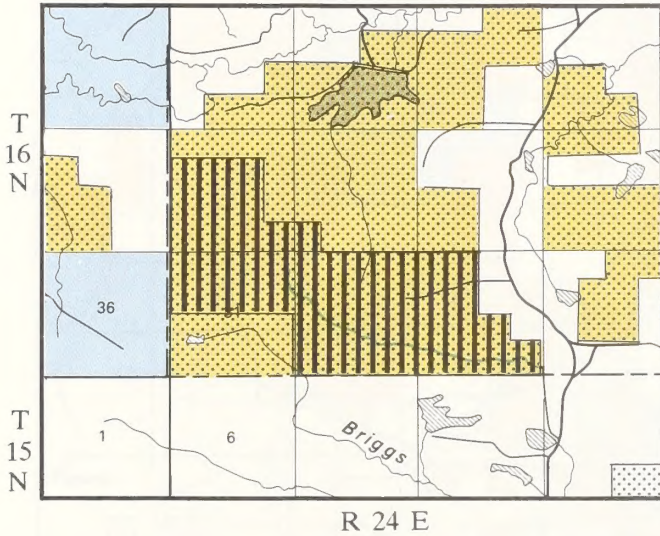
Chippewa Creek



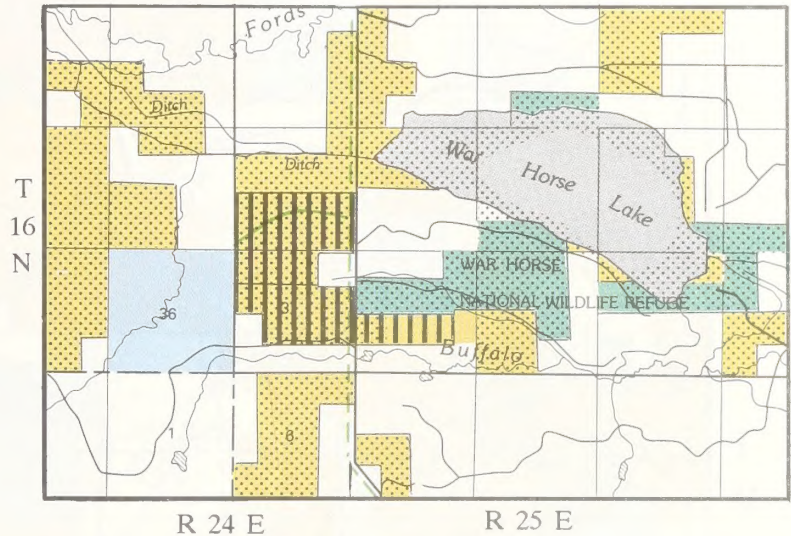
Fords Creek



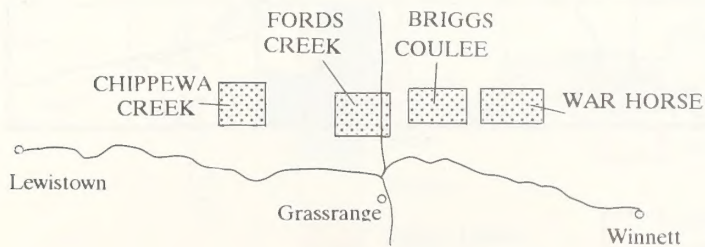
Briggs Coulee



War Horse



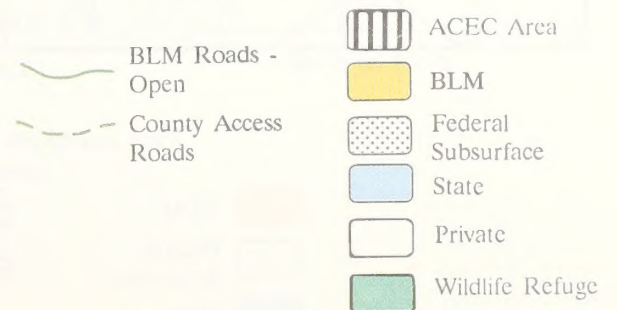
Location Map



Alternative C - War Horse Only

Alternative D - All four Areas

Alternative E - Briggs and War Horse only



0 1 2
Scale in Miles



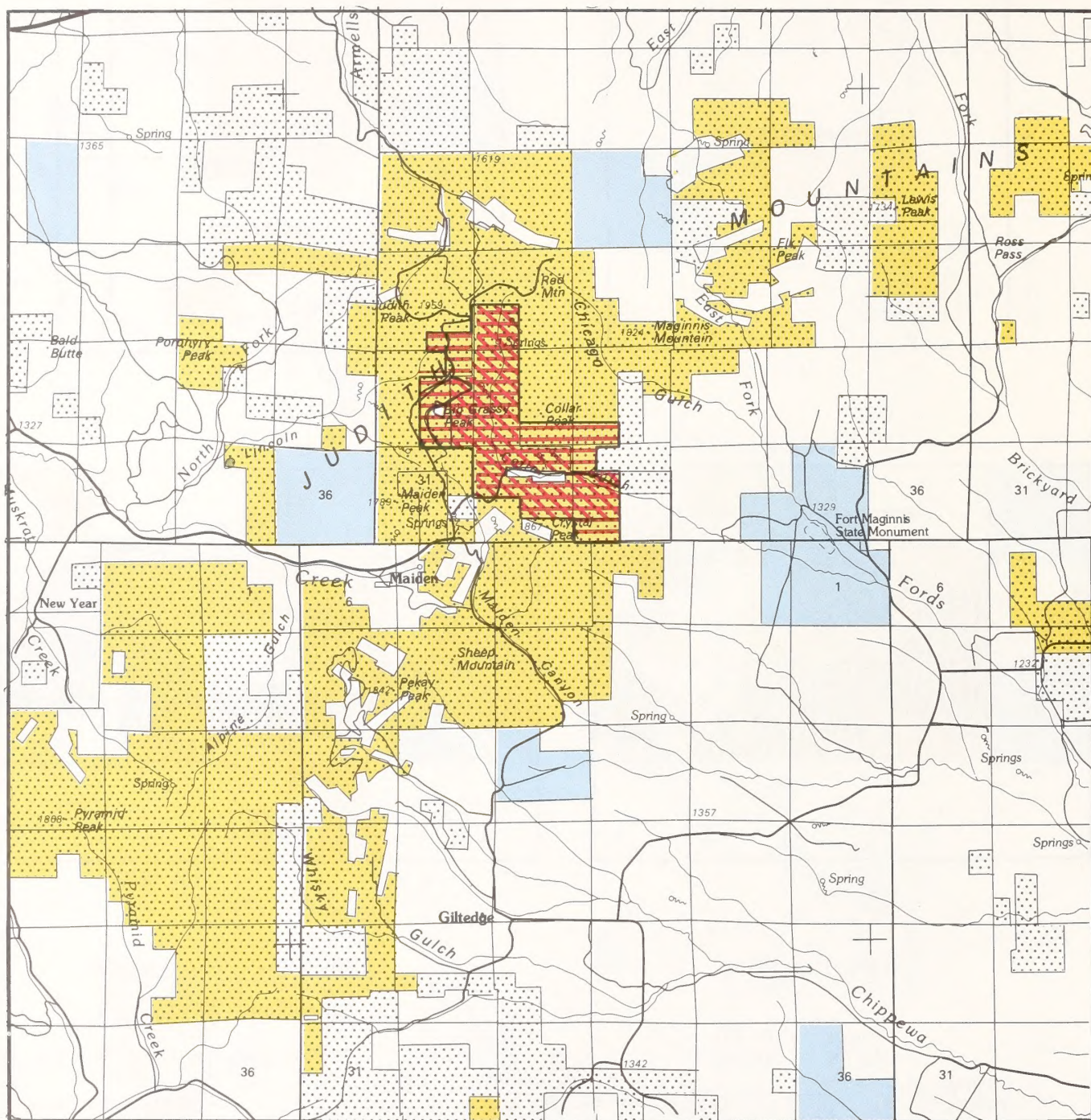
Map D Collar Gulch ACEC.

R 19 E

R 20 E

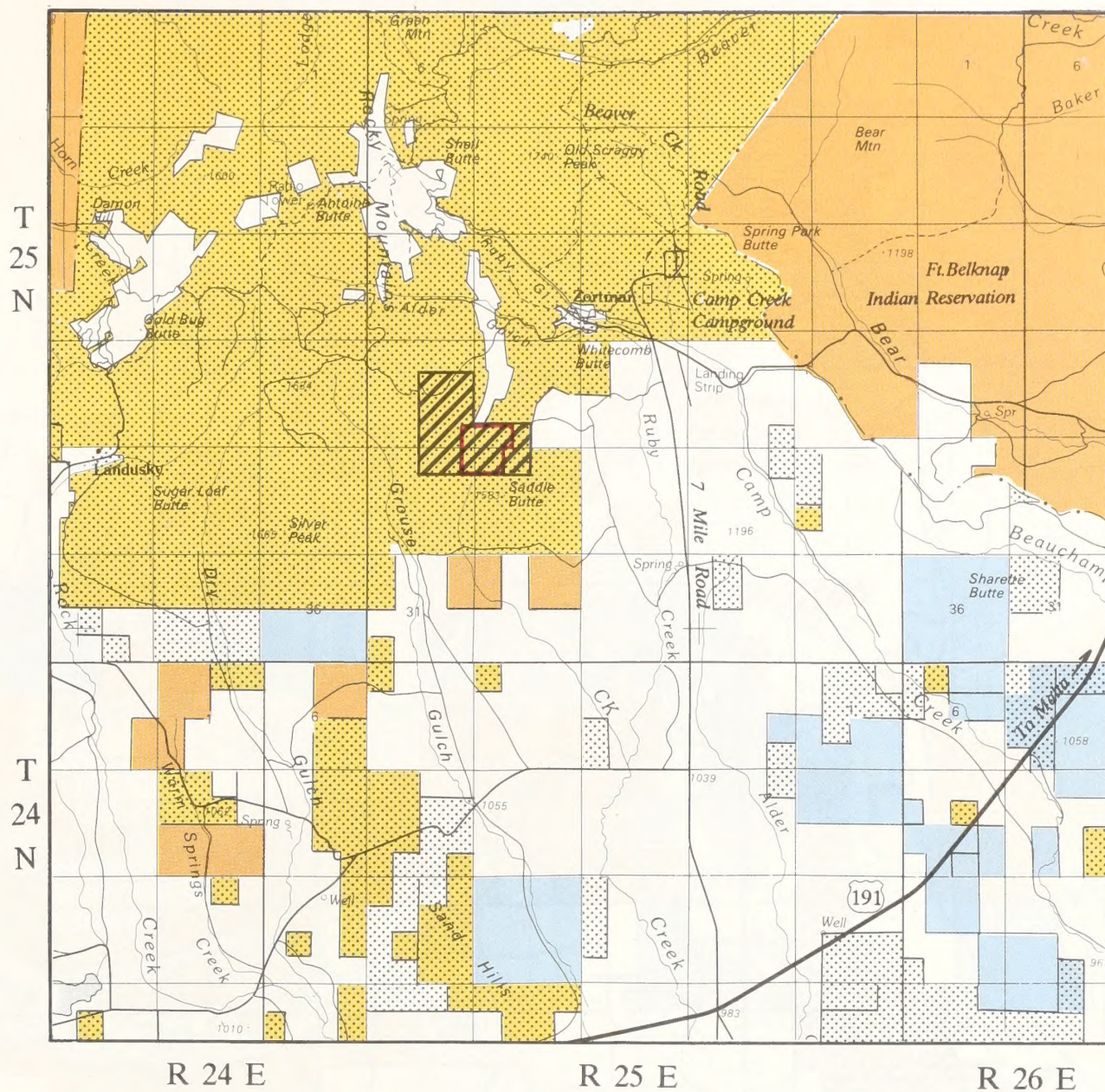
T 17 N

T 16 N



0 1 2
Scale in Miles

Map E Azure Cave ACEC.



- BLM
- Federal Sub-surface
- State
- Private
- Indian Lands or Reservation



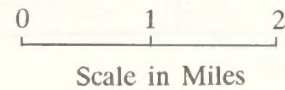
Alternatives C & D



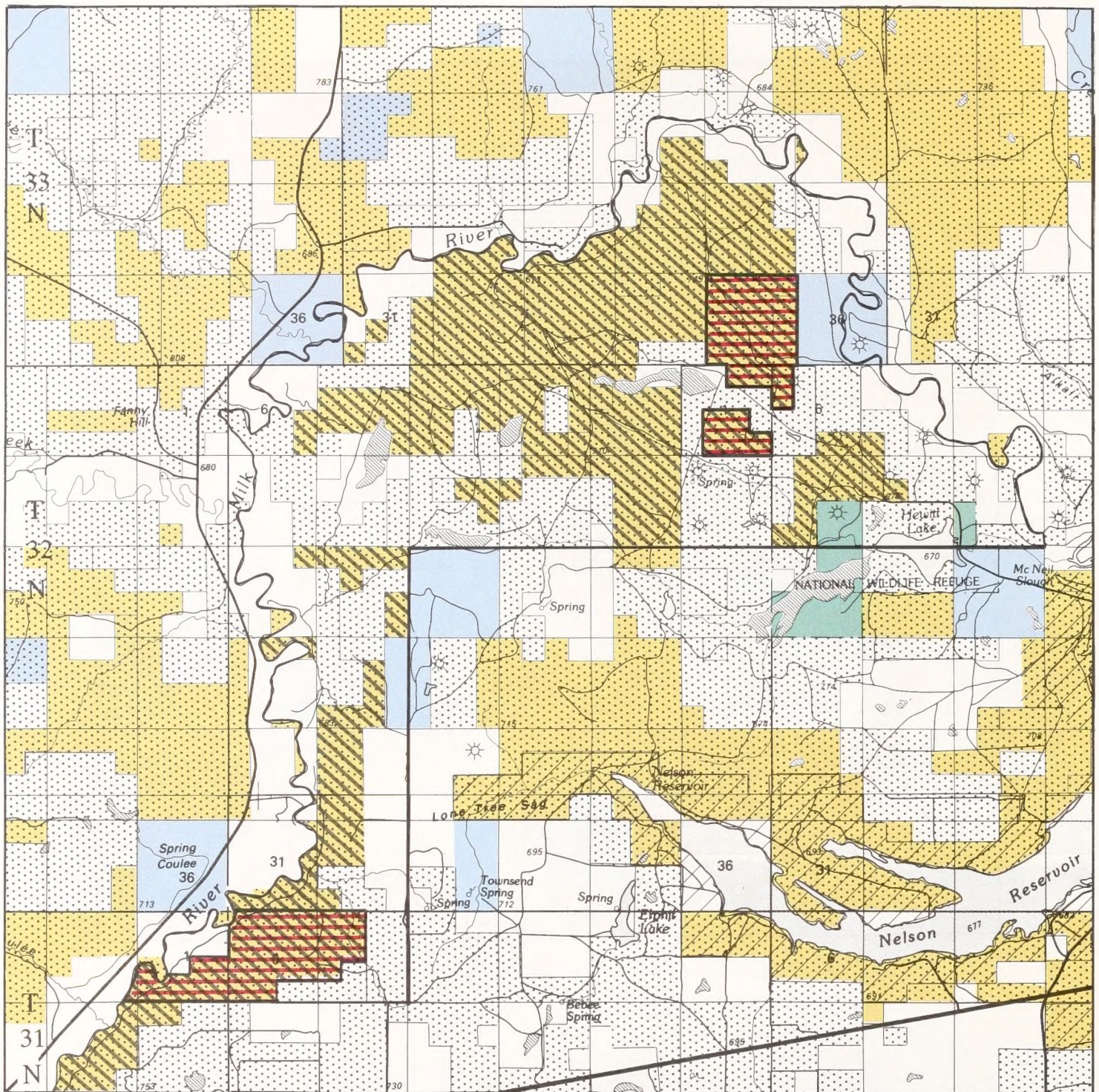
Alternative E



Currently Withdrawn from Mineral Entry









Map F Big Bend of the Milk River ACEC.






R 30 E

R 31 E

R 32 E

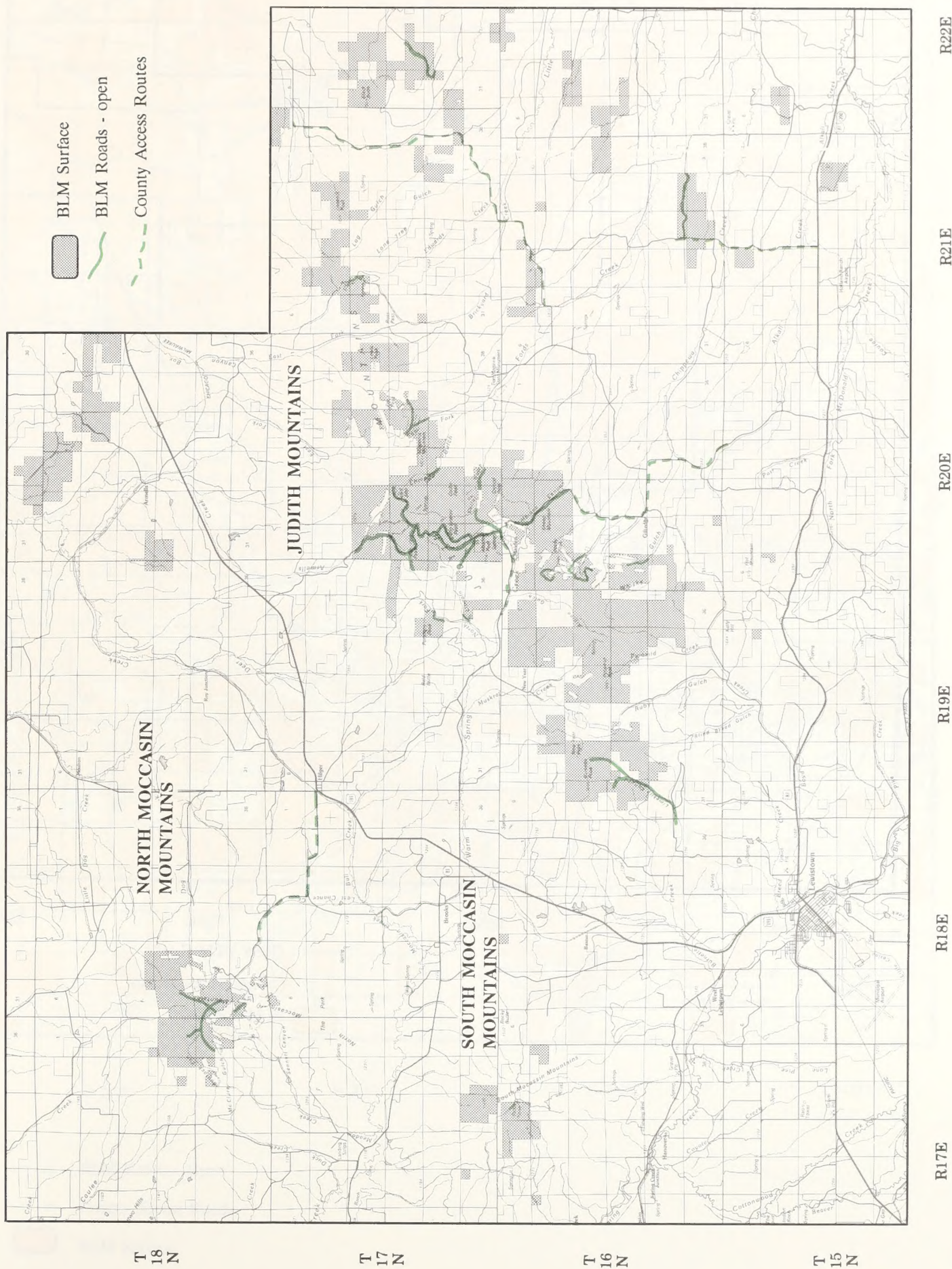
-  BLM Surface
-  Federal Subsurface
-  State
-  Private
-  Bureau of Reclamation
-  Wildlife Refuges

-  Producing Gas Wells
-  Alternative D
-  Alternatives C & E

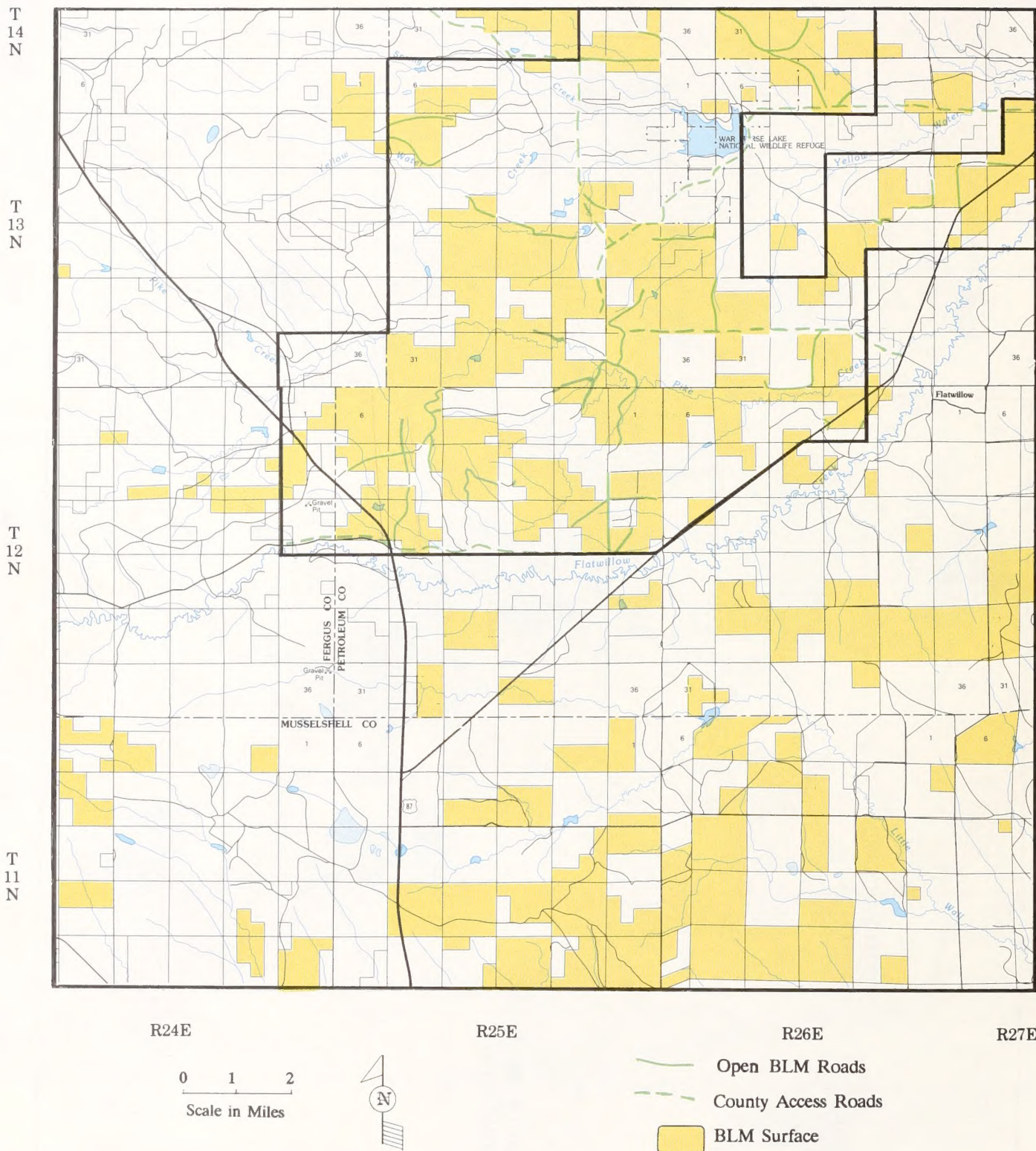


0 1 2
Scale in Miles

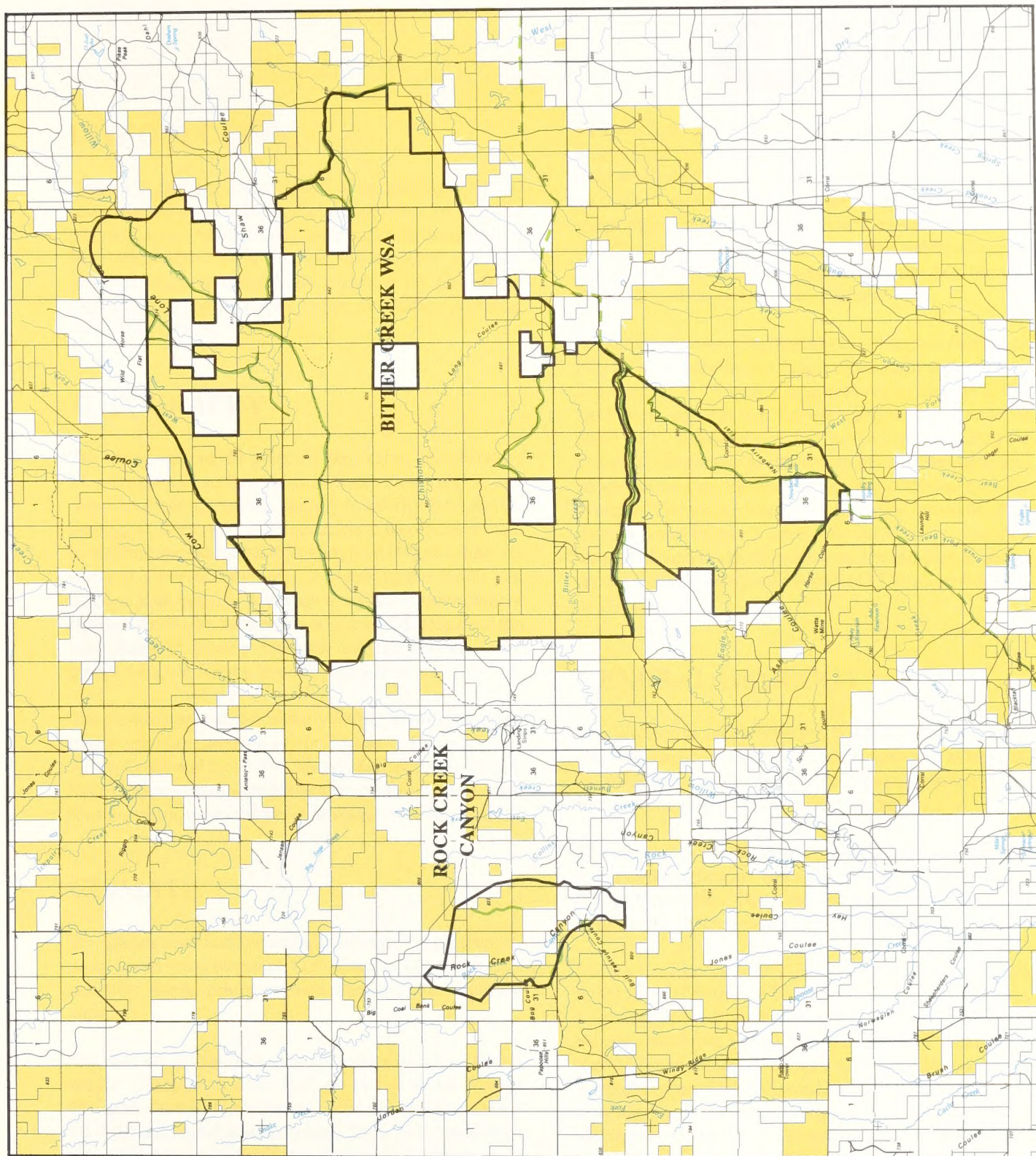
Map G Judith and Moccasin Mountains ORV Travel Plan.



Map H Yellowwater ORV Travel Plan.



Map I. Bitter Creek WSA and Rock Creek Canyon ORV Travel Plan.



T 35 N

T 34 N

T 33 N




T 32 N

R39E

R38E

R37E

R36E

-  BLM Roads - Open
-  County Access Roads
-  BLM Surface

THREE Affected Environment

INTRODUCTION

Chapter 3 contains a description of the pertinent natural resources and economic and social conditions found in the planning area. Much of this information is summarized from the Judith-Valley-Phillips Management Situation Analysis which is available for review at the Lewistown District Office and the Judith, Valley and Phillips Resource Area (RA) Offices.

TOPOGRAPHY

The topography of the planning area varies considerably. This area is part of the Northern Great Plains region and consists of rolling prairies, slightly to heavily dissected by drainage systems. Plains mountains punctuate the landscape in the Phillips and Judith RAs and rise 2,000 to 4,000 feet above the surrounding area. Portions of the Judith and Phillips RAs provide a unique transitional environment between the Rocky Mountains of western Montana and the vast plains of eastern Montana and the Dakotas. By comparison, the Valley RA contains less relief.

The planning area is part of the Missouri River basin. The major tributary systems of the Missouri River include Arrow Creek and the Judith, Musselshell and Milk Rivers. Each of these large drainage systems has dissected the land; forming cliffs, broad valleys or badlands-type topography.

CLIMATE

The climate is semiarid continental; marked by cold winters, warm to rarely hot summers, 11 to 40 inches of precipitation annually, winds primarily from the west and abundant sunshine.

The average annual precipitation ranges from 11 inches around Glasgow to more than 40 inches in the Snowy Mountains south of Lewistown; with most of the area in the 10 to 14 inch precipitation zones. Snow in the mountain areas may be several feet deep. On the plains, snow more than 12-inches deep is uncommon, but not rare. Snow generally falls between November and April, although traces have been reported at Lewistown in July and August.

Average precipitation recorded at weather stations in and adjacent to the planning area shows rainfall is concentrated

between April and June. Precipitation from July through September is characterized by localized intense thunderstorms that can drop more than an inch of rain or hail on a small area in a few minutes. Low humidity, high temperatures and moderate to strong winds cause rapid loss of soil moisture. The mountains, foothills and Breaks areas are subject to intense lightning storms from July through September, often resulting in wildfires.

Winter temperatures may be as low as -40 degrees Fahrenheit (°F) for short periods, but the average January temperature is around 15°F. Summer temperatures as high as 110°F have been recorded, but the average July temperature is about 70°F. Temperatures may fluctuate widely during the course of a single day in either winter or summer, and local temperatures may be several degrees different than the average. The higher mountains generally are cooler than the plains and Breaks areas during the summer. Growing seasons, defined as the time between the last frost in spring and the first fall frost (temperatures of 32°F) range from 104 to 132 days.

GENERAL GEOLOGY

The geology includes extremes in age and physiography. The land ranges from upland prairie, glaciated as recently as 10,000 years ago, to the nearly 3 billion year old exposed Precambrian material in mountainous areas.

The oldest rocks in the planning area are Precambrian age metamorphic gneisses and schists, exposed in the Little Rocky Mountains. The overlying, late Precambrian Belt Series rocks outcrop in the Little Belt Mountains.

During the Paleozoic Era, 570 to 240 million years ago, 5,000 to 10,000 feet of Cambrian, Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian and Permian rock was deposited (see Figure 3.1). The rocks are dominantly limestone and dolomite, but sandstone and shale also occur, particularly near the bottom and top. The massive Madison Limestone was deposited during this time. This formation can be over a 1,000 feet thick and is resistant to erosion, thus forming the spectacular cliffs in the mountain ranges of the planning area. In addition, caves in Paleozoic limestones occur in most mountain ranges of the planning area. The Mesozoic Era, from 240 to 66 million years ago, is divided into three periods: Triassic, Jurassic and Cretaceous (see Figure 3.1). Toward the middle of Jurassic time marine sea spread over this portion of the state depositing 200 to 600

FIGURE 3.1
Stratigraphic Column

ERA	PERIOD	SOUTH CENTRAL MONTANA	CENTRAL MONTANA	SWEETGRASS ARCH	NORTH CENTRAL MONTANA	NORTH POWDER RIVER BASIN	WILLISTON BASIN
CENOZOIC	TERTIARY		FORT TONGUE RIVER L&O UNION TULLOCK		FORT UNION TULLOCK	FORT TONGUE RIVER L&O UNION TULLOCK	FORT TONGUE RIVER L&O UNION TULLOCK
MESOZOIC	CRETACEOUS	UPPER	HELL CREEK	HELL CREEK	HELL CREEK	HELL CREEK	HELL CREEK
			LENNEP	FOX HILLS	FOX HILLS	FOX HILLS	FOX HILLS
			BEARPAW	BEARPAW	BEARPAW	BEARPAW	BEARPAW
			JUDITH RIVER	JUDITH RIVER	JUDITH RIVER	JUDITH RIVER	JUDITH RIVER
			CLAGGETT	CLAGGETT	CLAGGETT	CLAGGETT	CLAGGETT
			EAGLE VIRGELLE	EAGLE VIRGELLE	EAGLE VIRGELLE	EAGLE VIRGELLE	EAGLE VIRGELLE
			TELEGRAPH CR	TELEGRAPH CR	TELEGRAPH CR	TELEGRAPH CR	TELEGRAPH CR
			NIOBRARA-CARLILE	NIOBRARA-CARLILE	NIOBRARA-CARLILE	NIOBRARA-CARLILE	NIOBRARA-CARLILE
			GREENHORN	GREENHORN	GREENHORN	GREENHORN	GREENHORN
			BELLE FOURCHE	BELLE FOURCHE	BELLE FOURCHE	BELLE FOURCHE	BELLE FOURCHE
	LOWER	LOWER	MOWRY	MOWRY	MOWRY	MOWRY	MOWRY
			MUDDY	MUDDY	MUDDY (MUDDY)	MUDDY (NEWCASTLE)	MUDDY (NEWCASTLE)
			SKULL CREEK	SKULL CREEK	SKULL CREEK	SKULL CREEK	SKULL CREEK
			DAK SILT	BASAL COLO SILT	BASAL COLO SILT	BASAL COLO SILT	BASAL COLO SILT
			DAKOTA	DAK - 1ST CAT CREEK	DAKOTA	DAKOTA	DAKOTA
			GREYBULL	2ND CAT CREEK	FUSON (KOOTENAI)	FUSON (KOOTENAI)	FUSON (KOOTENAI)
			CLOVERLY	3RD CAT CREEK	KOOTENAI	LAKOTA	LAKOTA
			MORRISON SWIFT	MORRISON SWIFT	MORRISON SWIFT	MORRISON SWIFT	MORRISON SWIFT
			RIERDON	RIERDON	RIERDON	SUNDANCE	RIERDON
			ELLIS GROUP	ELLIS GROUP	ELLIS GROUP	ELLIS GROUP	ELLIS GROUP
PALEOZOIC	JURASSIC	UPPER	PIPER	PIPER	SAWTOOTH	GYPSUM SPRING	PIPER
			BOWES FIREMOON TAMPIO	BOWES FIREMOON TAMPIO			BOWES FIREMOON TAMPIO
			NESSON	NESSON			NESSON
			CHUGWATER	CHUGWATER	CHUGWATER	CHUGWATER	CHUGWATER
			DINWOODY	DINWOODY	DINWOODY	DINWOODY	DINWOODY
			PHOSPHORIA	PHOSPHORIA	PHOSPHORIA	PHOSPHORIA	PHOSPHORIA
			TENSLEEP	TENSLEEP	TENSLEEP	TENSLEEP	TENSLEEP
			AMSDEN	AMSDEN	AMSDEN	AMSDEN	AMSDEN
			ALASKA BENCH	ALASKA BENCH	ALASKA BENCH	ALASKA BENCH	ALASKA BENCH
			TYLER	TYLER	TYLER	TYLER	TYLER
PALEOZOIC	MISSISSIPPIAN	UPPER	HEATH OTTER KIBBEY	HEATH OTTER KIBBEY	HEATH OTTER KIBBEY	HEATH OTTER KIBBEY	HEATH OTTER KIBBEY
			CHARLES	CHARLES	CHARLES	CHARLES	CHARLES
			MISSION CANYON	MISSION CANYON	MISSION CANYON	MISSION CANYON	MISSION CANYON
			LODGEPOLE	LODGEPOLE	LODGEPOLE	LODGEPOLE	LODGEPOLE
			THREE FORKS	THREE FORKS	THREE FORKS	THREE FORKS	THREE FORKS
			JEFFERSON	JEFFERSON	JEFFERSON	JEFFERSON	JEFFERSON
			DUPEROW	DUPEROW	DUPEROW	DUPEROW	DUPEROW
			SOURIS RIVER	SOURIS RIVER	SOURIS RIVER	SOURIS RIVER	SOURIS RIVER
			BEARTOOTH BUTTE	BEARTOOTH BUTTE	BEARTOOTH BUTTE	BEARTOOTH BUTTE	BEARTOOTH BUTTE
			DAKOTA	DAKOTA	DAKOTA	DAKOTA	DAKOTA
PALEOZOIC	DEVONIAN	UPPER	LEIGH	LEIGH	LEIGH	LEIGH	LEIGH
			BIG HORN	BIG HORN	BIG HORN	BIG HORN	BIG HORN
			LANDER	LANDER	LANDER	LANDER	LANDER
			GROVE CREEK	GROVE CREEK	GROVE CREEK	GROVE CREEK	GROVE CREEK
			GALLATIN	GALLATIN	GALLATIN	GALLATIN	GALLATIN
			GROS VENTRE	GROS VENTRE	GROS VENTRE	GROS VENTRE	GROS VENTRE
			FLATHEAD	FLATHEAD	FLATHEAD	FLATHEAD	FLATHEAD
			RED RIVER	RED RIVER	RED RIVER	RED RIVER	RED RIVER
			WYOMING	WYOMING	WYOMING	WYOMING	WYOMING
			INTERLAKE	INTERLAKE	INTERLAKE	INTERLAKE	INTERLAKE
PROTEROZOIC	PRE-CAMBRIAN	UPPER	SWITCHBACK SHALE	SWITCHBACK SHALE	SWITCHBACK SHALE	SWITCHBACK SHALE	SWITCHBACK SHALE
			STEAMBOAT LIMESTONE	STEAMBOAT LIMESTONE	STEAMBOAT LIMESTONE	STEAMBOAT LIMESTONE	STEAMBOAT LIMESTONE
			PURCELL L&O	PURCELL L&O	PURCELL L&O	PURCELL L&O	PURCELL L&O
			UPPER SIYEH	UPPER SIYEH	UPPER SIYEH	UPPER SIYEH	UPPER SIYEH
			SPOKANE SH	SPOKANE SH	SPOKANE SH	SPOKANE SH	SPOKANE SH
			LOWER SIYEH	LOWER SIYEH	LOWER SIYEH	LOWER SIYEH	LOWER SIYEH
			GRINNELL SH	GRINNELL SH	GRINNELL SH	GRINNELL SH	GRINNELL SH
			ALLI	ALLI	ALLI	ALLI	ALLI
			APPEKUNNY QT	APPEKUNNY QT	APPEKUNNY QT	APPEKUNNY QT	APPEKUNNY QT
			ALTYN LS	ALTYN LS	ALTYN LS	ALTYN LS	ALTYN LS
ARCHEOZOIC							

feet of sandy, shaley, and limy sediments. These include the Ellis Group (Sawtooth, Rierdon and Swift Formations) and the Morrison Formation. Jurassic gypsum and coal have been mined in the planning area.

The Cretaceous period began with deposition of the Kootenai Formation. It includes sandstone and bright red shale which, on weathering, color the soils. These red soils are conspicuous in central Montana. During late Cretaceous time an inland sea extended from the Gulf of Mexico to the Arctic Ocean, covering all of eastern and central Montana. During the three major times the sea pushed westward the Colorado, Claggett and Bearpaw Formations were deposited. As the sea retreated, it deposited the Eagle Sandstone and Judith River Formation (Perry, 1962). Cretaceous age strata in central Montana have three major divisions: 1) the Colorado Group which developed during the first marine advance and is about 2,000 feet thick; 2) the Montana Group, about 1,500 feet thick, deposited during the multiple marine advances and retreats containing several different formations (see Figure 3.1); and 3) the Hell Creek Formation, about 700 feet thick, deposited after the complete retreat of the sea as a series of sediments laid down on a broad coastal plain as outwash from the rising Rocky Mountains (Perry, 1962). Several Cretaceous formations contain coal and bentonite beds.

The Cenozoic Era extended from 66 million years ago to the present. The era is divided into the Tertiary and Quaternary Periods (see Figure 3.1).

The early Tertiary time was a period of intense volcanism and mountain building activity in this portion of Montana. The region is broken by centers of intrusive and/or extrusive igneous activity. Such areas include the Bearpaw Mountains, the Little Rocky Mountains, the Highwood, Little Belts, Judith Mountains, Big and Little **Snowy Mountains**, and the North and South Moccasin Mountains. Along the margins of these uplifts the upturned stratigraphic section may include units as old as Precambrian up to those deposited just prior to uplift. Tertiary sedimentary rocks include the Fort Union Formation, which contains massive sandstone beds. Most of Montana's coal is from the Fort Union formation. The youngest Tertiary rock are the Flaxville gravels that can be found in parts of the Phillips and Valley RAs.

During the Quaternary Period, two major glacial advances occurred. The ice blocked many of the north-flowing rivers, creating large glacial lakes across central Montana. As the ice melted, its load of soil and rock material was deposited over most of northern Montana, filling preglacial valleys and covering the upland plains with glacial drift or moraines consisting of gravels, sand, and clay; but characterized by numerous large boulders of igneous rock. These glacial deposits cover most of the area north of the Missouri River and vary in thickness from several feet to several hundred feet. The Missouri River, which used to

flow in the current Milk River Valley and drain into Hudson Bay, was diverted to its present course. Many other streams and rivers either disappeared totally or had their courses radically altered.

In more recent time, erosion has dissected the landscape to its present form. Alluvial material derived from eroding mountains or from reworked glacial deposits, occurs at several levels above current drainages. Large areas of gravels with abundant pebbles and cobbles of limestone blanket the surface for many miles north of Harlowton, Roundup, and west of Lewistown.

PALEONTOLOGY

Paleontological resources consist of fossil plants and animals, or their impressions, found in the rocks of former surface and marine deposits. Fossils are found where erosion has exposed the fossil-bearing strata.

All paleontological formations in the Valley and Phillips RAs, except the Little Rocky Mountains, date from the late Cretaceous Era. The earliest unit is the Judith River Formation, which contains small quantities of terrestrial dinosaur, crocodilian and turtle fossils. Occasionally small mammal remains are found. A later unit is the Bearpaw shale, which contains marine dinosaur, fish and invertebrate fossils. The latest and most productive deposit is the famous Hell Creek Formation which contains abundant fossils of terrestrial dinosaurs, including those of *Tyrannosaurus Rex*. These formations are exposed along the Missouri River Trench and on the surface in the southern part of the planning area where glacial till is absent.

The paleontological formations in the Judith RA include the Bear Gulch Formation in the Little Snowy Mountains and foothills. This formation represents the earlier Mississippian Period of the Paleozoic Era, and contains abundant invertebrate and fish fossils. Paleozoic invertebrate fossils can be found in all of the planning area's mountain ranges. The Judith RA also contains late Cretaceous units found in the Valley and Phillips RAs since the Missouri River Trench is the boundary. There are also exposures of the Hell Creek Formation along the Musselshell River and in much of Petroleum County.

ENERGY MINERAL RESOURCES

Oil and Gas

There are three primary requirements for the presence of oil and gas deposits. The first is a hydrocarbon source rock. The most readily identifiable source rocks are the thick carbonaceous shales of Cretaceous age and the rich organic shales and limestones in the Mississippian Big Snowy

Group. The second requirement is a suitable host rock with adequate porosity and permeability to serve as a reservoir for the fluid mineral. The many sandstone and limestone rocks are the local reservoir rocks currently producing oil and gas. These formed as the alternating beaches and deltas gave way to coral reefs when an inland sea repeatedly invaded and receded. The third requirement is the presence of a geologic condition in the subsurface known as a trap. Structural trapping of hydrocarbons results when rocks are subjected to stress, causing them to be folded or faulted. Stratigraphic traps result when permeability between or within rock units decreases, preventing the movement of the oil and/or gas.

Historic development and production of oil and gas dates back to the early part of this century. The Cat Creek oil field was discovered in 1920 and gas fields in Bowdoin and Armells were discovered in 1913 and 1921, respectively. These fields, as well as later discoveries (Rattlesnake Butte and Leroy), have since been developed (see Table 3.1).

TABLE 3.1
OIL AND GAS FIELDS IN THE PLANNING AREA

Field	Type	Total Wells	Producing Wells	Year Discovered	1987 Production
Armells	Gas	8	0	1921	0
Bowdoin	Gas	683	547	1913	2,713,761 MCF
Cat Creek	Oil	222+	72	1920	42,937 BO
Leroy	Gas	29	24	1968	706,773 MCF
Rattlesnake Butte	Oil	23	8	1984	84,056 BO

BO = Barrels of oil

MCF = Thousand cubic feet

Source: Montana Oil and Gas Summary, 1987

In 1919, the first major oil find in Montana was established in the Cat Creek field. By the end of 1920, there were 60 drill rigs at work and Montana was on the map as an important oil producing state. The Cat Creek field is located at the eastern edge of Petroleum County. The productive portion of this fold is about 14-miles long with 10 miles in Petroleum County and the remaining 4 in Garfield County. In 1954, a refinery was constructed adjacent to the East Dome of the Cat Creek field to produce jet fuel under government contract for the Air Force bases in Great Falls and Glasgow.

The Rattlesnake Butte field, located in Petroleum County, produces oil from the same formations as Cat Creek field.

The Bowdoin Dome was discovered in 1913, and has expanded to include a roughly circular area, 50-miles in

diameter, with over 800 active wells. This gas-producing field has more wells than any other field in the planning area. The gas production of this area originates in shallow sandstone rocks. The unique feature of the gas reservoirs is their low permeability which prolongs the life of wells and limits the horizontal distance each well can effectively drain. All of the gas produced in this area is collected into sales lines operated by Williston Basin Interstate Pipeline Company.

The Leroy gas field in the Judith RA is located on the northern edge of Fergus County. This field was discovered in 1968, but many of the wells were shut-in after completion due to the rough terrain and the low demand and price of natural gas. The 10 wells which make up the Fergus County portion of the field were not put on line until 1983.

The eastern portion of the Valley RA includes the western edge of the Williston Basin geologic province. It is an extensive feature which includes most of eastern Montana and the western half of North Dakota. There are numerous oil and gas fields within this basin, some of them within 30 miles of the planning area. There are no producing wells in the planning area associated with this feature, but both the southern and northern portions of the Valley RA have had unsuccessful deep wells drilled within the last 5 years.

Historically, most oil and gas exploration in the planning area has been geared toward natural gas. The planning area has been a significant contributing oil and gas source for Montana and this trend is expected to continue. Appendix B provides more information on oil and gas resources.

Geothermal

In 1947, a test well was drilled to 5,500 feet in the Bowdoin Dome. This well encountered large volumes of hot water (108°F) above the Madison Limestone, but no shows of oil or gas. The well was eventually converted to commercial use supplying hot water to the Sleeping Buffalo Resort, which still operates today.

Oil Shale

An oil-shale bearing unit informally designated the Forest Grove Member is found within the Mississippian-age Heath Formation of central Montana (Derkey et al, 1985). The Cox Ranch oil-shale bed, within the Heath Formation, is a metalliferous oil shale with an average thickness of 6.2 feet. The bed has been correlated within a 120 square mile area, centered approximately 15 miles southeast of Lewistown. The thinness, low oil yield and low metal content of the Cox Ranch oil shale bed are major factors that discourage exploration.

Coal

Coal beds are present in the Cretaceous Kootenai Formation, the Eagle Sandstone, the Judith River Formation, and the Paleocene Fort Union Formation. Coal has been reported at one location in the Jurassic Morrison Formation on the flank of the Little Rocky Mountains uplift near Zortman.

There are no federal coal leases in the planning area. Based on the nature of the coal beds in the planning area, the most likely locations for development would be the small area of Fort Union Formation coal in northeastern Valley RA and the Kootenai Formation coal in the Lewistown and Great Falls coal fields in the Judith RA.

The Fort Union Formation, in northeast Valley RA, is at the western limit of the Scobey coal field. This area contains the only identified strippable coal resources in the planning area. An assessment of the development potential (Gruber, 1986) listed federal coal resources at 49.1 million tons of high/moderate development potential; including both demonstrated and inferred tonnages.

NONENERGY MINERAL RESOURCES

Hardrock

Hardrock mineral resources include precious and base metals such as gold, silver, copper, lead, zinc, and gemstones such as sapphires. Other mineral commodities which may be locatable include uncommon varieties of bentonite, building stone, limestone and gypsum.

Table 3.2 presents an inventory of mining claims located in the planning area along with the believed commodity of interest. This table includes claims for hardrock resources and uncommon varieties.

The following section describes the geology, mining history, and current activity in the Judith Mountains, North and South Moccasin Mountains, Little Belt Mountains and Little Rocky Mountains.

Judith Mountains

Geology

The Judith Mountains are a group of coalescing igneous domes formed in early Tertiary time. The main intrusive masses are stocks composed mostly of quartz monzonite and rhyolite. Smaller intrusive masses may be dikes, sills, or perhaps laccolithic in character. Four general types of ore deposits are recognized in the Judith Mountains; contact metasomatic, open cavity, fissure filling and replacement deposits (Forrest, 1971). Also present are a few placer deposits.

TABLE 3.2
UNPATENTED MINING CLAIM INVENTORY

Number	Claim Type	Suspected Commodity	Remarks
JUDITH RESOURCE AREA:			
Judith Mountains			
1054	Lode	Au, Ag	
9	Placer	Au	
1063	Total Mining Claim, Judith Mountains		
North Moccasins			
241	Lode	Au	
241	Total Mining Claims, North Moccasins		
South Moccasins			
234	Lode	Au	
234	Total Mining Claims, South Moccasins		
Little Belts*			
4	Lode	Au*	Does not include mining claims with National Forest surface
8	Lode	Sapphires	
12	Total Mining Claims, Little Belts		
Petroleum County			
13	Lode	Bentonite	
41	Placer	Bentonite	
54	Total Mining Claims, Petroleum County		
1604	TOTAL MINING CLAIMS, JUDITH RESOURCE AREA		
PHILLIPS RESOURCE AREA:			
Little Rocky Mountains area			
1193	Lode	Au, Ag	
2	Placer	Au	
9	Lode	Diamond/ Garnet	Diatremes
1204	Total Mining Claims, Little Rocky Mountains area		
South Phillips County			
83	Placer	Bentonite	No current production
83	Total Mining Claims, South Phillips County		
1287	TOTAL MINING CLAIMS, PHILLIPS RESOURCE AREA		
VALLEY RESOURCE AREA:			
South Valley County			
228	Placer	Bentonite	No current production
228	Total Mining Claims, South Valley County		
228	TOTAL MINING CLAIMS, VALLEY RESOURCE AREA		

Source: BLM Mining Claim Recordation System, October, 1988.

Contact metasomatic deposits are restricted to isolated areas immediately adjacent to the larger igneous masses.

Open cavity and fissure filling form a small but important group containing both base and precious metals, including the high grade gold ore in the Spotted Horse Mine.

Replacement deposits are the most extensive and economically productive of all deposit types. These deposits are typically small, carrying a moderate to good grade of ore. They are occasionally found as vein zones, which may reach a few feet in width and contain an excellent grade of ore.

Placer gold deposits are the least important source of metal in the area. Placer mining has been conducted in the recent gravels of Warm Springs Creek, Alpine Gulch and Whiskey Gulch with a small amount of success. Though the value of some gravels is apparently good, the quantity is small and the water supply is insufficient through the summer.

Mining History

In 1880, placer gold was discovered in Alpine Gulch. These deposits were small and quickly played out, yielding only a few thousand dollars in gold. Lode mining began in 1881, in the Maiden area, and quickly spread to the Giltedge area. In the period from 1881 to 1916, two mining districts, Warm Spring and Cone Butte, developed over 26 claim groups and numerous individual claims.

The Warm Spring District covers land around the Maiden area, on the west side of the Judith Mountains; and the Giltedge area on the east side of the Judith Mountains. The main activity was concentrated in these areas, but also occurred in the New Years Gulch area. Production figures before 1932 are not available, but it is estimated that the value of precious metals recovered prior to 1914 was in excess of 7 million dollars (350,000 oz. gold equivalent at \$20/oz. in 1914 dollars). From 1932 to 1947 the Warm Spring District produced 1,292 ounces of gold, 30,325 ounces of silver, 8,339 pounds of copper, and 5,787 pounds of lead (Robertson, 1950). Mining from 1947 until the early 1980s produced only a minimal amount of metals.

The Cone Butte District covers the northeastern portion of the Judith Mountains extending from Judith Peak to Black Butte. From the early 1880s to 1947 there were over 20 group operations and numerous individual operations. Production records prior to 1932 are not available. From 1932 through 1947 the district is estimated to have produced 393 ounces of gold, 3,994 ounces of silver, 5,563 pounds of lead, and 5,694 pounds of copper (Robertson, 1950). Mining operations from 1950 until the early 1980s was sporadic and produced only a minimal amount of metals.

Recent Activity

Within the last 3 years two new gold/silver mines started production in the Judith Mountains. The Spotted Horse Mine, near the head of Maiden Canyon reopened with a new mill, and then closed in 1990. The mine was reportedly producing 50 tons per day (TPD) of ore, with plans to expand the operation to 100 TPD. The Gies Mine, up the East Fork of Fords Creek, and the Virgin Gulch Mine near Giltedge, are operating and hauling the ore to the old gypsum plant in Heath, where the mill is located. Mill tailings are disposed of underground in the old gypsum mine. Both mines are underground operations located on patented mining claims adjacent to BLM land. Only a small portion of the access roads and facilities for these mines are located on BLM land. This operation was suspended in 1991.

There is active exploration in both the Warm Spring and Cone Butte Mining Districts. Current exploration drilling is taking place in the Giltedge, Alpine Gulch, Pekay Peak, Gold Hill, Collar Gulch, Red Mountain, Elk Peak, New Year Gulch and Linster Peak areas.

North and South Moccasin Mountains

Geology

The North and South Moccasin Mountains are laccolithic and sill-like intrusions of syenite porphyry that uplifted the mountains. The North Moccasins were formed by doming and faulting that was concentric to a single large, laccolith-intrusive center. The South Moccasins reflect uplift by a cluster of stocks, laccoliths and domes.

The main area of economic interest lies near the old mining town of Kendall. Gold and silver mineralization occurs in a breccia zone at the top of the Madison Group and from associated hydrothermally altered syenite porphyry that locally invaded the limestone along the breccia zone (Blixt, 1933; Robertson, 1950). The mineralized zone extends from the Kendall open pit to the Horseshoe mine and possibly further in both directions. Mapping shows that the mineralized zone is associated with faulting and syenite intrusion (Lindsey, 1982). The zone follows the footwall of a major fault that, with few exceptions, is parallel to the strike of bedding.

Another area of economic interest is the breccia pipes in both the North and South Moccasins. Breccia pipes occur in the North Moccasins at the head of Plum Creek, and in the South Moccasins near Peak 5798 and at the Republic claim northeast of Hanover Dome. Analysis for gold and other metals show that all of the pipes are mineralized (Lindsey, 1982).

Mining History

About 450,000 ounces of gold and 31,445 ounces of silver were mined near Kendall between 1890 and 1947 (Robertson, 1950). During the early 1980s several attempts were made at open pit, heap leach mining without much success.

Recent Activity

Current mining is focused in the historic Kendall Mining District. The property was recently purchased by CR Kendall. Production at the mine resumed in September, 1988. An active mine exploration program has greatly expanded reserves. Gold production from pen pit mining and cyanide heap leaching is expected to peak at around 40,000 oz. per year. Though most of the operation is located on private lands, future exploration and development will involve more BLM land.

There have been several exploration projects in the Plum Creek area of the North Moccasins and the area is still being assessed. In the South Moccasin Mountains, several companies believe there is high potential for precious metal deposits due to the geologic similarity with the North Moccasins.

The Iron Creek drainage in the North Moccasins contains several small scale placer operations. Past production from these deposits is unknown, but not believed to be significant.

Little Belt Mountains

Geology

The Little Belt Mountains are a broad northwest/southeast trending series of igneous uplifts forming one continuous mountain range. The majority of the intrusions have been described as domes of laccolithic origin with associated dikes and sills. The Judith Basin County portion of the Little Belt Mountains contains several mining districts. Because of their proximity to BLM land only the Barker and Yogo Districts are discussed.

The Barker District contains the Dry Fork of Belt Creek, and its tributaries west of the divide between the Dry Fork of Belt Creek and Dry Wolf Creek and the areas drained by headwater branches of Otter and Arrow Creeks. Deposits of precious metals are found in the various igneous units and as irregular replacement deposits in the sedimentary rocks.

The Yogo District includes the areas south and east of the divide between Yogo and Running Wolf Creek and areas above the headwaters of the Middle Fork of the Judith River and as far south as the main divide along the southern border

of the county. The geologic setting is similar to the Barker District, but Madison Limestone is the predominant rock type. It is estimated that the total metal production for this district is less than one-quarter of that of the Barker District.

The Yogo District is noted for its sapphire mining. Sapphires were discovered by accident in the process of placer mining in 1895 along Yogo Creek (Zeihen, 1987). A lamprophyre dike is the host rock for the disseminated sapphires. Sapphire mining has used both surface and underground methods. Oxidized ore, generally from the surface to a depth of 60 feet, is crushed and then washed over a series of screens and riffles, like those used for placer gold mining. Non-oxidized ore must first be crushed and then treated to an oxidizing process to free the trapped sapphires. This treatment in the past has been simply exposure to the air for a period of months.

Mining History

Placer gold was first discovered in 1860, along Yogo Gulch. Seventeen years later, one of Montana's larger silver-lead deposits was discovered in what is now called the Barker Mining District. The Barker Mining District has a sporadic production history (Robertson and Roby, 1951). The major production in this district was from the Block P Mine, near Hughesville. This mine operated from 1915 to 1948, under various owners. This was an underground operation mining lead, zinc, silver and gold ores. By 1948, it produced 405,852 tons of ore with an average grade of 0.05 ounces of gold per ton and 50.0 ounces of silver per ton. Since 1948, mining and development has been very sporadic (Robertson and Roby, 1951).

The Yogo District's history of production and ownership is varied and sporadic. There was somewhat continuous production from the late 1800s to 1929. During that time it is estimated that over 200,000 tons of ore was mined from three separate operations and recovered 13 million carats of sapphires. Records of sapphire production from 1929 to the early 1980s is currently not available, but it is thought that very little mining was conducted.

Recent Activity

Currently, in the Judith Basin County portion of the Little Belt Mountains there are only three mining operations listed with the state of Montana (Lawson, 1987). Each operation has produced or been listed as being in the developing stages since 1948. In 1984, a westward extension of the sapphire-bearing dike was discovered. This resulted in the formation of the Vortex Mining Company of Utica, Montana. This is a small surface operation, which so far has been successful in establishing new sapphire production for Montana.

Little Rocky Mountains

Geology

The Little Rocky Mountains form a roughly elliptical dome extending 10-miles northeast/southwest and 8-miles northwest/southeast. The core of the mountains is composed of late Cretaceous to Paleocene age alkalic igneous rocks. The dominant rock types are quartz monzonite, syenite and trachyte. These rocks have been intruded through the Precambrian basement into the overlying sedimentary section. Engulfed blocks of Precambrian and Paleozoic rocks, measuring from thousands of feet to less than one inch, are very abundant within the intrusive units. Sedimentary units surrounding the intrusive core were steeply upturned during emplacement. The more resistant units, notably the Madison Limestone, now form a series of near vertical cliffs which encircle the mountain range.

The epithermal syenite hosted gold deposits of the Little Rocky Mountains vary from vein like at one extreme to disseminated fracture stockworks at the other extreme. The gold and silver deposits occur in structurally prepared areas within the intrusive rocks. The deposits are localized in strongly fractured areas which have undergone repeated intrusion. Mineralization appears most directly related to the mechanical behavior of the host rock. Those lithologies which shattered most and maintained open fracture systems became the major host for these deposits (Rogers and Enders, 1982).

Gold and silver are the only mineral commodities of the ore. The primary minerals identified in the veins include gold and silver bearing pyrite, arsenopyrite, sylvanite, native gold and native silver. Investigations of stockwork ore have shown only gold and silver bearing pyrite and arsenopyrite to be present. Knowles (1982) was unable to locate any gold in nine samples of ore using a microprobe. He suggested the gold and part of the silver are contained in the pyrite crystal structure. Trace amounts of base metal sulfides have been identified in the stronger sulfide zones. Chalcopyrite, molybdenite, sphalerite, galena and covellite have been identified in strongly silicified syenite (Rogers and Enders, 1982).

The upper, oxidized portion of the ore body is the current focus of economic interest. The ore mineralogy is even more simple within the oxidized portion than in the sulfide zone. Gold and silver occur finely mixed in a matrix of clays, hydrous iron and manganese oxides and quartz. Oxidation has developed in the ore body in a typical funnel shape extending to 500 feet. Oxidation is greatest in the ore zones where the increased fracturing has allowed oxidation to penetrate a greater depth. The finely divided nature of the gold and silver and its release and concentration along natural fractures upon oxidation makes it extremely amenable to cyanide heap leaching and is responsible for the success of the current mining operations.

The Zortman and Landusky deposits differ somewhat in detail. In Zortman, mineralization is developed predominantly in a fracture stockwork system in syenite porphyry adjacent to a strong fault zone between syenite porphyry and a large block of metamorphic gneisses and schists. In Landusky, mineralization is developed predominantly along shear zones in syenite porphyry and quartz monzonite porphyry within a major shear structure (Rogers and Enders, 1982). The silver-to-gold ratio averages about 7 to 1 at both mines, though some places may run higher than 20 to 1 (Ryzak, 1988).

Mining History

Prospectors reportedly first discovered gold in the Little Rocky Mountains as early as 1864 (Murray, 1978). It was not until 1884 that the first paying placer deposits were discovered in Alder Gulch near present day Zortman. A small and short lived rush developed, providing only minor production. A renewed interest in placer deposits occurred between 1928 and 1948, but yielded only 326 ounces of gold (Lyden, 1948).

The extremely fine grained gold caused recovery problems for both placer miners and early lode miners. Most of the gold was far too fine to be recovered in placer operations, even with amalgam. This alone probably accounts for the low placer gold recovery over the years as well as the failure of the early lode mining attempts. Intensive development in the district began in 1903 with introduction of the cyanide process. Cyanide mills were constructed in Zortman in 1903 and Landusky in 1907. This began a period of continuous operation in the district which lasted until low gold prices forced shut down in 1923.

Discontinuous small operations from 1923 to 1934 consisted mainly of clearing out old leach tanks, or mining an occasional high grade pocket of ore. The increase in the price of gold to \$35/per ounce in 1934 spurred a small mining boom. The mines were again active from 1935 to 1942 at which time War Production Board Order L-208 ended most gold mining in the United States (Murray, 1978). Sporadic efforts were made to reopen the mines after World War II and all serious mining had ceased by 1951.

Recent Activity

In 1979, large scale mining began in the Little Rocky Mountains. The ore was extremely amenable to the cyanide heap leaching process. This is due primarily to the finely disseminated gold particles occurring along natural fractures in the rock, allowing contact between the cyanide and gold without requiring crushing. The heap leaching process, as used at the Zortman and Landusky mines, involves construction of retaining dikes in ephemeral drainages,

lining the impoundment area with bentonitic shale and PVC, loading mined ore onto the liner, spraying the ore with a weak cyanide solution (< 0.1%), recovering the gold bearing cyanide solution, and removing the gold from the leachate using either the Merrill Crowe or carbon adsorption method.

The Zortman Mine consists of seven leach pads containing total mined ore estimated at 20 million tons. Average ore grade is 0.028 ounces per ton (opt) gold, and 0.171 opt silver. Total disturbed acres at the Zortman Mine is approximately 450; one-fourth of which is on BLM land.

The Landusky Mine consists of nine leach pads that will ultimately contain about 120 million tons of ore. One of the valley-fill leach pads, constructed in 1987, contains 40 million tons of ore. Another leach pad, under construction, will contain an estimated 50 million tons of ore when fully loaded in the next 3 to 4 years. Mined ore to date averages 0.022 (opt) gold and 0.125 opt silver. The total disturbed area at the Landusky Mine totals 810 acres; two-thirds of which is on BLM land.

Production from the Zortman and Landusky Mines from 1979 to present is over 1 million ounces of gold, and 2 million ounces of silver. For detailed production figures see Table 3 in Appendix C.

Diatremes

South of the Little Rocky Mountains, in a line trending from Coburn Butte to Saskatchewan Butte, are a series of ultramafic outcrops termed diatremes. These igneous intrusions originated at extreme depth. Potassium-argon dating indicates emplacement occurred between 46 and 52 million years ago (Hearn, 1979). Only the Williams diatremes, near Thornhill Butte, can be considered a kimberlite on the basis of mineral content. The other diatremes have chemical and mineralogical affinities similar, but not identical to kimberlites.

The main importance in recognizing kimberlites is their association with diamond occurrences. Kimberlite intrusions are currently being mined for diamonds in South Africa. The Montana diatremes and associated kimberlites have been mapped and prospected for some time. Earlier studies by Brockunier (1936) and Buie (1941) recognized and mapped several of these features. It was not until the late 1950s that their importance as possible kimberlites were published (Knechtel, 1959; Hearn, 1968).

Currently, there are 11 lode claims located on the diatreme outcrops. Although there has been small scale prospecting for commercial grade garnets and diamonds along the outcrops of these intrusions, sampling has not revealed any diamonds or diamond deposits.

Bentonite

Bentonite is composed of clay minerals from the montmorillonite group. The rock commonly has great ability to absorb water and swell from 10 to 15 times its dry volume. Swelling properties of the individual clay minerals determine the commercial use of the deposit (Berg, 1969). Deposits of bentonite are generally created from metamorphism of volcanic ash deposited in a marine environment. The geologic formations that contain the most noted bentonite deposits are the Bearpaw Shale of the Montana Group, and the Mowry in the Colorado Group. Although bentonite does occur in other formations, it is these two formations that are considered to have the necessary thickness and physical properties to contain commercial deposits. The Bearpaw Shale in the Phillips and Valley RAs contains commercial bentonite deposits.

Bentonite has been mined for the production of brick, drilling fluids, sealing reservoirs, fertilizer, foundry sand, pottery and the production of taconite pellets used in iron ore refining. Commercial mining has occurred across the state since the turn of the century. Until the late 1970s the general use of bentonite in the Phillips and Valley RAs was pit run bentonitic shale for sealing stock ponds and canal lining.

In 1978, after several years of exploration, American Colloid Company opened a bentonite processing plant in Malta. This was an open-pit operation capable of processing approximately 250,000 tons annually. The final product was used for drilling fluid additives, or in the production of taconite pellets for the iron industry. The bentonite deposits were located south of Malta, along outcrops of the Bearpaw Shale. When the plant closed in 1986, American Colloid had processed approximately 1 million tons of bentonite, had patented 222 mining claims and had an active interest in another 83 unpatented claims. The plant was forced to close due to lack of a market for oil and gas drilling mud additives and taconite pellets. In 1988, American Colloid withdrew its patent application on 28 mining claims located for bentonite.

In 1976, after several years of exploration, Federal Bentonite, a division of Aurora Industries, Aurora Illinois, opened a small bentonite processing plant southeast of Glasgow. The bentonite deposits mined were from a middle member of the Bearpaw Formation. There is an upper and lower bentonite bed in this member, each 2 to 3 feet thick. The upper bed has the best quality, but is the most difficult to mine due to limestone and iron concretions. The bentonite claims were leased from Brazil Creek Bentonite Company of Glasgow. This was an open-pit mine with plant processing capacities of approximately 200,000 tons annually. The final product was used for production of taconite pellets. The plant was in production until 1979, and processed less than 1 million tons of bentonite. Although the plant was closed, bentonite was mined from 1983 through 1985.

Federal Bentonite produced approximately 180,000 tons during that 3-year period. The bentonite was solar dried and shipped in bulk by rail. The approximate value of bentonite from the Glasgow area was \$27 per ton in 1985. Currently, there is no bentonite mining in the Valley RA. The 228 unpatented mining claims located for bentonite by Brazil Creek Bentonite Company were recently abandoned.

In southern Petroleum County there are 54 mining claims located for bentonite held by Kaoben Corporation. This deposit is located in an area underlain by the Cretaceous Colorado shale. To date, only prospecting is known to have occurred on these claims.

There are no bentonite leases or sale permits in the planning area, but some claims are maintained as discussed above. The future for bentonite mining in the planning area is marginal. The viability of mining is tied closely to activity in the oil and gas industry. Even if the good market conditions of the late 1970s and early 1980s return, developers may be more cautious with mine investments, considering the past experience of bentonite operations in the area.

Gypsum

Gypsum is a mineral used in producing plasters, cements, tile, sheetrock and similar products and has been mined in Montana since the turn of the century. Commercial grade deposits of gypsum are scattered across central Montana.

The two major gypsum operations within the Judith RA were located near Hanover and Heath, Montana. The Hanover mine was operated by the Three Forks Portland Division of the Ideal Cement Company. The company produced crude and calcined gypsum. Approximately 18,000 tons of gypsum rock was produced yearly from 1918 to 1954. The capacity of the plant was 100 to 150 tons per day (Miller, 1959). This mine and processing plant was closed because of market conditions.

The Heath Gypsum Plant is located at Heath, Montana. The operation was controlled by the United States Gypsum Company. The mine capacity was approximately 500 tons of raw gypsum per day from an underground room and pillar method. The processing plant produced sheetrock, calcined gypsum for plasters and fertilizers, and blocks and tile. The mining and processing of the gypsum at this site was initiated by the Northwest Gypsum Company in 1905. It was later purchased by the U.S. Gypsum and ran continuously until 1986. The mine and plant closed due to poor market conditions.

Limestone and Lime

Limestone was probably one of the first exploited mineral resources in Montana. It is used in the construction industry for producing lime and quicklime mining and industrial chemical usage for controlling pH, and in agriculture use in soil conditioning. Occurrence of minable limestone and its reserves are limitless across western and central Montana. Production of limestone has occurred mostly along the vast outcrops of the Mississippian age Madison Group. The potentially productive formations within this group occurs in all the mountain ranges within the Judith RA. Although there are vast reserves of limestone throughout the Judith RA, there has been little mining. The mining that has occurred has been in small isolated pits almost entirely on private surface. There is a limestone pit in the Beaver Creek area of the Little Rocky Mountains that was used for pH control in the early mining activities. This commodity may be of value in present day mineral processing, if development of the sulphide portion of the ore body occurs.

MINERAL MATERIALS

The planning area contains deposits of sand and gravel that originated from fluvial and glacial sources. Tertiary gravels make good material for road surfacing and construction projects. Most deposits contain adequate fines for roadwork, though some may require crushing. Some of the Quaternary terrace deposits consist almost entirely of limestone pebbles and cobbles, and may not be as durable as deposits containing more igneous material. The deposits of glacial origin contain a large percentage of igneous material. The amount of fines is variable, depending on the specific depositional environment. The till or moraine material has a high clay content and makes a good low permeability liner for ponds and canals.

Extensive deposits of bentonitic shale occur throughout the planning area. This material is useful in construction projects where low permeability barriers are required; such as for reservoirs or irrigation canals. The gold mines at Zortman and Landusky use bentonitic shale as liner material for cyanide leach pad and pond construction. To date several hundred thousand cubic yards of bentonitic shale has been mined from locations all within 10 miles of the mines.

Mineral material development is primarily for sand and gravel sources needed for road surfacing. Pits are usually located within 20 miles of the particular project and generally require little in the way of access development. Other mineral material activity is related to specific construction jobs such as liners for reservoirs, canals and heap-leach

mining operations; riprap for irrigation or retention structures; aggregate for concrete mix and building stone for general use. Virtually all this material is used in the immediate area. Some building stone may be economic to transport for considerable distance, if a deposit with high enough value is found.

The large majority of mineral material permits have been free use permits issued to the county or state governments for road construction or maintenance. Several other small sales have been made to local contractors for maintenance of Air Force missile roads.

HAZARDOUS MATERIALS

Hazardous material are used in connection with a variety of authorized activities. Mining, oil and gas activity, military facilities, powerline/pipeline ROWS, weed and insect control and prairie dog control are a few examples.

Transporting hazardous materials into or through the planning areas occurs by commercial truck or rail traffic and military convoy. The major routes used are U.S. Highways 2, 87, and 191; and Montana Highways 19, 66, and 200. There are no sites on BLM land known or suspected to be contaminated with hazardous materials.

AIR QUALITY

Air quality is good, mainly due to the few industries and low population density in the area. A Class I airshed exists in the U. L. Bend Wilderness area within the Charles M. Russell National Wildlife Refuge (CMR) and on the Fort Peck Indian Reservation adjacent to the planning area. All other land in the planning area is designated as Class II.

A planning and management process, "Prevention of Significant Deterioration" (PSD), was introduced as part of the 1977 Amendment to the Clean Air Act. These PSD requirements set limits for increases in ambient pollution levels and established a system for preconstruction review of new, major pollution sources. Three PSD classes have been established. Class I allows very small increases in pollution; Class II allows somewhat larger increases; and Class III allows the air quality to deteriorate considerably. In general, Class I is designed for pristine areas where almost any deterioration would be significant. Class II allows for moderate, well-controlled growth and Class III allows pollutant levels to increase considerably.

One air quality monitoring site exists at Malta. No other sites are needed in the planning area, due to the sparse

population and scarcity of pollutant producers. Gold mines in the North Moccasin, Judith and Little Rocky Mountains; asphalt plants; gravel crushers; agricultural activities; wind erosion; and automobiles are potential sources of pollution.

GROUNDWATER

Shallow water sources (less than 500 feet) are scarce. Shallow aquifers occur in the alluvium of major drainages, in buried alluvial, ice marginal, glacial outwash channels and terrace deposits. Depth, yield and quality vary widely. This water is generally marginal for domestic use due to high total dissolved solids (TDS) but suitable for livestock and wildlife use.

Deeper aquifers (greater than 500 feet) are shown in Table 3.3. Except for the Madison these aquifers are generally marginal to unsuitable for domestic use due to TDS levels. They are generally too deep to be economical for livestock and wildlife use.

TABLE 3.3
MAJOR GROUND WATER AQUIFERS
UNDERLAYING BLM LAND

Aquifer	Resource Area	Depth	Yield/ GPM	Quality Domestic	Quality Livestock
Judith River	Judith	700-2500	2-60	Marginal to Unsuitable	Suitable
"	Phillips	200-1000	3-4	"	"
"	Valley	200-1200	3-12	"	"
Eagle	Judith	700-2500	2-60	"	"
Third Cat Creek	Judith	700-2000	7-60	"	"
Bearpaw Shale	All	varied	<2	Unsuitable	Unsuitable
Madison	All	800-4000	10-200	Suitable	Suitable

GPM = Gallons per minute

Source: BLM, 1990

The Madison Aquifer is generally suitable for domestic use. Its extreme depth increases drilling costs, but completed wells often flow at the surface or have static water levels within 200 feet of the surface.

SURFACE WATER

Streamflow volumes differ greatly within the planning area. Flows in all unregulated streams have large seasonal variations, with the largest flows generally occurring during spring or early summer as a result of snowmelt and rainstorms. Peak flows on prairie streams occur in March or April resulting from snowmelt. Larger peak flows on small drainages can occur from intense summer thunderstorms, but generally not on an annual basis. Peak flows on mountain streams occur from late May to early June. The peaks are less sharp than on prairie streams. Summer rainstorms can result in short intervals of increased streamflow during June through September. During winter, streamflow in prairie streams is greatly reduced or absent as a result of little ground water inflow and ice formation.

Most precipitation is lost through runoff, transpiration or evaporation. Approximately 80 to 90% is lost through evaporation and transpiration. About 9 to 19% is lost as runoff and generally less than 1% recharges ground water aquifers. Average annual runoff is approximately 0.5 inch. Average annual precipitation ranges from 11 inches in the Glasgow area to 40 inches in the Snowy Mountains. Most BLM land is in 10 to 14 inch precipitation zones.

The Missouri, Milk, Musselshell, and Judith Rivers are the major drainages in the planning area. Table 3.4 lists the BLM stream miles for these perennial streams as well as for significant intermittent streams.

Surface Water Quality

Dissolved solids are derived by leaching soluble minerals from soils and geologic formations under the drainage basin. The dissolved solids are composed largely of the cations calcium, magnesium, and sodium, and the anions bicarbonate, sulfate, and chloride. Variations in the dissolved solids concentration and composition in streams result primarily from changes in the amount and source of streamflow. During low flows, water in the streams is derived mostly from ground water sources and will reflect the dissolved solids concentration and water type of contributing aquifers. During high flows, most of the water entering the streams is from precipitation runoff. The relatively short period that runoff is in contact with soils provides little opportunity for dissolution of minerals.

Consequently, the increased volume of water during high flows reduces the dissolved-solids concentration by dilution.

In addition to streamflow variability and geology other factors that affect the dissolved-solids concentration of a stream include irrigation return flows, saline seep, discharge from mines and water losses from evapotranspiration. Dissolved solids concentrations during low flow from mountain streams ranged from about 250 to 600 milligrams per liter (mg/l). Prairie streams range from 1500 to 3500 mg/l. At high flows, mountain streams range from 150 to 250 mg/l and prairie streams 500 to 1300 mg/l. The predominate ions in the mountain streams are calcium, magnesium, bicarbonate and sulfate. Prairie streams are predominately sodium sulfate.

Streams normally exhibit a pH between 6.5 and 8.5, which is typical of natural waters. Most streams have large alkalinities which prevent large changes in pH from persisting far downstream. Because of the near-neutral pH, most concentrations of dissolved trace elements rarely exceed water quality standards. An exception is the concentration of arsenic in the Missouri River. Arsenic concentrations exceed the federal and state instream standard in the Madison and Missouri River mainstems in Montana. Arsenic is a known carcinogen. EPA's standard for carcinogens is based on a risk level that would result in one case of skin cancer per million people. Based on this standard, the risk of skin cancer for arsenic is as high as one case per 77 people at West Yellowstone to about one case in 10,000 people at Landusky. The Montana Department of Health and Environmental Sciences also lists several other streams in the planning area as impaired in the 1990 Montana 305 (b) report to the Environmental Protection Agency. These streams are the Judith River below Ross Fork, Montana Gulch near Landusky, the Musselshell River below Flatwillow Creek, the Milk River from the Blaine/Phillips County line to Hinsdale, Whitewater Creek, and McDonald Creek. All these streams contain significant parcels of BLM land within their watersheds and may be contributing to the impairment of the streams. All except Montana Gulch exhibit high levels of siltation, total dissolved solids (TDS), total suspended solids (TSS), nutrients, and flow alterations. The probable sources of the impairments (non-point source pollution) originating on BLM land are from livestock grazing, habitat modification, and natural geological erosion. Montana Gulch is impaired due to high metal concentrations originating from past and present mining activities in the upper watershed.

TABLE 3.4
PERENNIAL AND INTERMITTENT STREAMS

Stream	Status	Total Miles	BLM Miles	% Stream on BLM Land	Stream	Status	Total Miles	BLM Miles	% Stream on BLM Land
<i>Phillips Resource Area</i>					<i>Valley Resource Area (continued)</i>				
Whitewater Creek	P	59	35	59	E. Fork Bear Creek	I	5	3	60
Cottonwood Creek	I	53	11	21	Bear Creek	I	6	0.5	8
Garland Coulee	I	12	8	67	Bluff Creek	I	12	5	42
Beaver Creek	P	171	20.4	12	E. Fork Crow Creek	I	11	10	91
Black Coulee	I	13	11	85	Crow Creek	I	18	12	67
N. Whiterock Creek	I	12	9	75	Snake Creek	I	16	9	56
Whiterock Creek	I	17	15	88	Cash Creek	I	13	2	15
Flat Creek	I	28	13	46	E. Fork Cash Creek	I	6	2	33
Sage Creek	I	16	15	94	W. Fork Cash Creek	I	3	0.3	10
Assiniboine Creek	I	43	4	9	Brazil Creek	I	18	8	44
Little Cottonwood	I	37	3	8	N. Fork Willow Creek	I	12	7	58
Wilson Coulee	I	18	4	22	S. Fork Willow Creek	I	9	3	33
Exeter Creek	I	20	5	25	Willow Creek (South)	I	36	24	67
Martins Coulee	I	16	4	25	Larb Creek	I	36	12	33
White Creek	I	43	6	14	Timber Creek	I	18	8	44
First Creek	I	14	2	14	Sutherland Creek	I	16	7	44
Second Creek	I	15	3	20	Lone Tree Creek	I	14	14	100
Third Creek	I	11	1	9	Little Beaver Creek	I	18	17	94
Fourth Creek	I	17	1	6	Antelope Creek(Dry Run)	I	15	3	20
West Alkali Creek	I	27	3	11					
Alkali Creek	P	37	3	8	Subtotal		612	252.1	
Seven Mile Creek	I	12	1	8					
Wild Horse Creek	I	41	1	3	<i>Judith Resource Area</i>				
Rudolph Coulee	I	26	5	19	Arrow Creek	P	61	5	8
Little Warm Creek	I	44	1	2	Judith River	P	125	8	16
Big Warm Creek	I	71	2	3	Armells Creek	I	60	13	22
DHS Creek	I	13	2	15	Dog Creek	I	60	13	22
Dodson Creek	I	34	1	3	Box Elder Creek	P	86	10	12
Austin Coulee	I	27	2	7	Ford Creek	I	26	7	27
Milk River	P	114	5	4	Crooked Creek	I	62	15	24
					Little Box Elder Creek	I	29	4	14
Subtotal		1,061	196.4		Sand Creek	I	17	5	29
<i>Valley Resource Area</i>					Antelope Creek	I	14	2	14
Milk River	P	130	0.5	0	Dovetail Creek	I	27	7	26
Rock Creek	P	52	17.5	34	Blood Creek	I	37	13	35
McEachran Creek					Dry Blood Creek	I	12	4	33
(W.Rock)	I	6	0.5	8	Cottonwood Creek	I	15	10	67
S. Fork Rock Creek	I	11	6	55	Drag Creek	I	13	7	54
Deep Creek(N.Fk.Willow)	I	17	15	88	Buffalo Creek	I	11	3	27
Willow Creek	P	19	0.8	4	Cat Creek	I	16	3	19
E. Fork Willow Creek	I	18	8	44	S. Fork Flatwillow	I	21	0.3	1
Chishom Creek	I	16	14	88	S. Fork Elk Creek	I	9	1	11
Bitter Creek	I	6	5	83	Yellow Water Creek	I	37	12	32
Eagle Creek	I	9	8	89	Musselshell River	P	91	8.9	10
Unger Coulee	I	13	10	77					
Buggy Creek	I	11	7	64	Subtotal		829	151.2	
Canyon Creek	I	13	9	69					
Brush Fork (W.Bear)	I	9	4	44	Total		2,502	599.7	

P. = Perennial
I. = Intermittent

Source: BLM, 1990

Water Rights

The State of Montana began adjudicating its water rights in the early 1980s. BLM filed claims on all BLM water developments and natural sources (springs, pot holes, lakes, etc.). The total number of water developments by resource area are shown in Table 3.5.

TABLE 3.5
**WATER DEVELOPMENTS/
RANGELAND IMPROVEMENTS
ON BLM LAND***

Type of Improvement	Units by Resource Area			
	Valley	Phillips	Judith	Total
Reservoirs (Number)	1,367	1,943	555	3,865
Wells (Number)	27	33	47	107
Pipelines (Miles)	36	16	96	148
Springs (Number)	29	31	55	115
Waterspreaders (Acres)	5,755	—	—	5,755
Watersavers (Number)	—	4	19	23
Fences (Miles)	1,500	1,383	827	3,710
Land Treatments (Acres)	6,040	6,989	7,177	20,206
Cattle Guards (Number)	100	125	65	290

*Water sources claimed for water rights as of December 31, 1988. Does not include sources built from 1989 to present.

Source: BLM, 1990

BLM developed a memorandum of understanding (MOU) with the Bureau of Reclamation (BR) in 1981, limiting the size of reservoirs built by BLM in the Milk River Basin, an overallocated basin. BLM may only build structures capable of storing more than 2 acre-feet of water if draw-down capabilities are installed or through negotiations with BR. This MOU allows BLM to continue improving its rangelands with water developments while protecting BR's senior irrigation rights on the Milk River.

Erosion and Sedimentation

The susceptibility of the planning area to erosion varies widely. The soils most susceptible to erosion occur in the Sedimentary Uplands Physiographic Province, including the Missouri River Breaks, the Willow Creek basin and the Bitter Creek badlands in Valley County; and the Frenchman and Cottonwood Breaks in Phillips County. Much of the Breaks areas are in the severe to very severe erosion susceptibility category. The Soils section gives detailed descriptions of the erosion hazard for each soil subgroup.

SOILS

Soils in the planning area are derived from glacial till, sedimentary or igneous bedrock and alluvium from mixed rock sources. This creates complex and diverse soil patterns, varying greatly in character capability, limitations and productivity. Specific soil information is available from the county soil surveys.

The soil surveys for Judith Basin, Fergus, Petroleum, Valley and part of Phillips Counties have been completed by the U.S. Soil Conservation Service (SCS). An Order II survey for dominantly agricultural land and an Order III survey for dominantly rangeland and forest land is underway in Chouteau and Phillips Counties. The reconnaissance soil survey of the BLM land in Chouteau and Phillips Counties was done in 1979, and the unpublished manuscripts and maps are available for review at the BLM offices in Malta and Havre. This Order III survey was made primarily for rangeland and forestry management uses.

For descriptive purposes the soils were grouped into 19 soil subgroups (see [Appendix D](#)). Each soil subgroup has unique capabilities and limitations for land uses and treatments based upon climate, parent material, topography and soil properties. [Appendix D](#) describes the soils briefly, dominant soil series, and ecological site names.

The SCS and BLM soil surveys identified four distinct Physiographic Provinces that encompass the 19 soil subgroups. The four Physiographic Provinces and their descriptions follow (see [Figure 2.1](#)).

Glacial Till Upland Province

The Glacial Till Upland Province, with associated wet basins, make up the northern part of the planning area. These uplands formed during several periods of late Wisconsin glaciation. The landscapes range from nearly level to gently rolling and from strongly rolling to steep along drainageways. The glacial till ranges from a few feet to about 200-feet thick and is generally underlain by clayey and loamy shale. Major drainage systems are deeply entrenched, and they drain into the Milk and Missouri Rivers. The elevation ranges from about 3,300 to 6,000 feet. Precipitation in this province averages from 11 to 16-inches annually. The most common soil subgroups in this province are 1,2,7 and lesser amounts of 3,6,8 and 17.

Steep shale, siltstone, sandstone bedrock exposures and gravel-capped rims along the valley walls of deeply dissecting drainages are common. Upland potholes, valley bottoms, terraces, fans and valley footslopes are also significant inclusions with complex soil patterns and physical properties.

These nearly level to rolling, glaciated uplands have slight to moderate erosion hazards, due to dominantly gently rolling topography and short slopes with prominence of dense clubmoss-blue grama sod. When disturbed or cultivated, erosion hazards increase, especially the wind erosion hazard.

Sedimentary Uplands Province

The Sedimentary Uplands Province is composed mostly of clayey soils weathered from calcareous and acid shales. Loamy and sandy sedimentary uplands with complex soil patterns and physical properties are common. The sedimentary parent material ranges from shale to sandstone. Precipitation in this province averages from 11 to 20 inches. The most common soil subgroups in this province are 3,4,5,16 and lesser amounts of 6,10,11,12,13 and 17.

The acid shale-dominated areas are very fragile due to the granular clay surface soil textures, the low vegetation ground cover potentials and strongly sloping to steep slopes. Very high wind and water erosion forces are accelerated when vegetation ground cover is reduced. These soils are found along the dissected slopes of valley walls. The other soils in this province are usually fragile and highly erosive because of the dominance of moderately steep and steep slopes and extreme physical properties such as high clay content, slow permeability, high salt content, relatively shallow depth to bedrock and sparse vegetation ground cover on soils weathered from shale resulting in rapid surface water runoff. Active geologic erosion is obvious throughout the sedimentary uplands. The shale areas are dissected by numerous drainages and valley walls that rise abruptly above the narrow floodplains. The high erosion and sedimentation rates have a detrimental impact on the life span of reservoirs in the area and on fish habitat.

The sedimentary soils in the Breaks are highly susceptible to compaction and due to the fragile nature of the soils and topography, vehicle travel and access are severely limited during seasonally wet periods. Unrestricted vehicle travel in these soil types on unimproved roads or in connection with cross country travel can lead to severe rutting, soil erosion and resource damage, depending on the soil conditions and slopes. Mass soil movement, or slumping, is a naturally occurring process in these sedimentary Breaks areas, but it can also be the result of surface disturbing activities (like cutting roads into hillsides dominated by clays over shale).

Alluvial Soils Province

The Alluvial Soils Province includes the deep, clayey, loamy and sandy soils of the valley bottoms, valley side slopes and upland terraces. Local areas have rock fragments throughout the soil or in the underlying parent material.

Precipitation in this province averages from 11 to 20 inches. The most common soil subgroups in this province are 6,8,9,10,11,12,13,14,17 and lesser amounts of 3,4 and 16 along the associated steep dissected valley walls.

Many narrow valleys and terraces are very important due to their high vegetation production potential. The nine most common subgroups in this province separate the significantly different and contrasting soils developed in alluvium from mixed rock sources. These soils are in heavy livestock and wildlife use areas next to water sources, shade and low topographic relief for trailing and grazing. Water erosion ratings range from slight to high when vegetation cover is reduced significantly.

The fine textured soils (high in clay content) are especially susceptible to compaction from trampling. Compaction under wet soil conditions during the spring months results in reduced water infiltration (with less water available or plant growth) and increased surface runoff and associated erosion. Accelerated erosion occurs near water sources and along streams and drainage bottoms with active gullying and headcutting in disturbed soil areas. Livestock trails are incised, particularly near existing water sources.

Mountains and Foothills Province

The Mountains and Foothills Province is composed primarily of loamy and clayey soils in mountainous areas with forest and intermixed grassland cover on foothills. The most common soil subgroups in this province are 15,18,19 and lesser amounts of 6 and 9.

These shallow to deep soils are found on hard bedrock ridges and on footslopes forming rolling to very steep terrain with areas of bare rock and talus. Many areas have rock fragments throughout the soil.

These areas generally receive more precipitation than the surrounding prairie (precipitation in this province averages from 11 to 22 inches) and therefore have greater vegetation ground cover. Erosion hazards are slight to high and compaction susceptibility is moderate to high. Those areas that are shallow to bedrock are difficult to rehabilitate after surface disturbing activities. This province is a valuable watershed for many streams.

VEGETATION

The planning area supports a diverse number of plant species because of the wide range of soil types, geology and climatic conditions. Livestock grazing and wildlife habitat are the major uses of vegetation. Forested lands provide sawtimber, firewood, and Christmas trees on a limited basis. Grass seed and hay are also sold on a limited basis primarily from crested wheatgrass fields.

The following descriptions of major vegetation types describe the physiographic provinces, range sites, plant communities, landforms and major uses. Detailed descriptions of plant communities, and forage production by ecological site can be found in the Soil Conservation Service Technical Guides.

Upland Prairie and Breaks Vegetation Types

Grass

The grass vegetation type consists mainly of short and mid-grasses and is predominately associated with silty, sandy, claypan and thin, silty ecological sites. This vegetation type occurs mainly on rolling uplands of the glaciated plains, sedimentary plains and mountain foothills. On the glaciated plains, silver sagebrush is often a significant component of the plant community. Clubmoss carpets most silty and claypan ecological sites in the glaciated plains as understory.

Common plant species in this vegetative type include western and thickspike wheatgrass, needleandthread, green needlegrass, Sandberg bluegrass, plains reedgrass, inland saltgrass, blue grama, little bluestem, and threadleaf sedge. Common forbs include American vetch, scarlet globemallow, fringed sagewort, cudweed sagewort, pussytoes and bastard toadflax; and shrubs including silver sagebrush, rubber rabbitbush, prickly pear and winterfat are common. Less common plant species include bluebunch wheatgrass, prairie sandreed, Nuttall saltbush, rabbitbush and skunkbush sumac.

This vegetation type is valuable for livestock forage production, primarily spring through fall. Mule deer, antelope, sharp-tailed grouse, waterfowl and many species of non-game birds and mammals utilize this area. Antelope use this area yearlong when silver sagebrush is a subdominant species. Sharp-tailed grouse generally prefer tall residual grass areas for yearlong use, while waterfowl use these areas in the spring, summer and fall for pair bonding, breeding, nesting, broodrearing and staging.

Crested wheatgrass, an introduced species, was planted throughout the planning area in the 1930s on farmed land purchased by the federal government under the Bankhead-Jones Farm Tenant Act. Large acreages of this farmed land were allowed to recover naturally as well. The crested wheatgrass receives little livestock use in many cases because the seeded areas are intermingled with native range and livestock prefer the native vegetation. When crested wheatgrass is fenced separately, it is valuable as spring pasture, deferring use of the native range. Monotypic stands have little value as wildlife habitat, but stands that include substantial sagebrush and native forbs are valuable sage grouse and waterfowl habitat.

Big Sagebrush/Grass

This vegetation type is the dominant type throughout the sedimentary uplands. Included in this type are the plains south of the Missouri River, parts of the Missouri Breaks, much of south Phillips County, the Willow Creek Basin in southern Valley County, and numerous areas of badlands topography intermingled in the glaciated plains, including the Frenchman, Cottonwood and Bitter Creek areas.

Western and thickspike wheatgrass, prairie Junegrass, Sandberg bluegrass, green needlegrass, prairie sandreed, bluebunch wheatgrass, little bluestem, blue grama, and needleandthread are the most common grasses. Common forbs include broom snakeweed, American milkvetch, wild onion, Astragalus species, fringed sagewort, bastard toadflax, scarlet globemallow, lomatium and scurfpeas. The most prevalent shrub is big sagebrush and greasewood is associated with saline soils within this vegetation type.

This vegetation is of moderate to high value for livestock forage. Antelope, mule deer, elk, sharp-tailed grouse, sage grouse, waterfowl, and many species of non-game mammals and birds use this vegetation type. Antelope and mule deer use these areas yearlong and are dependent on sagebrush for winter browse. Mule deer and elk use the edges of sagebrush ridges adjacent to conifer forests for food yearlong. Sage grouse are dependent on sagebrush yearlong. Sharp-tailed grouse may utilize this type yearlong, depending on habitat conditions. Waterfowl use these areas heavily in the spring and summer when this vegetation type is associated with reservoirs or potholes.

Saltbush

Nuttall saltbush is the dominant plant on broad alluvial valleys associated with sedimentary badlands, especially in southern Valley County. BLM has converted substantial acreages of this type to grassland by contour furrowing and constructing water spreader structures. The ecological site is dense clay and forage productivity is normally very low due to the extremely slow water infiltration. Livestock seek out this vegetation type in spite of its low productivity because of the mineral and protein content of saltbush and the accessibility of its location.

Associated grass species in this vegetation type include Sandberg bluegrass and western wheatgrass. Important forbs include prickly pear, wild onion and wild parsley. Greasewood is often associated as a fringe type. This vegetation type is important habitat for antelope and sage grouse yearlong.

Ponderosa Pine/Juniper

This vegetation type, within the Sedimentary Uplands Province, is on the sideslopes of drainages within the Missouri, Musselshell and Judith River Breaks and is associated with the shallow clay and coarse clay ecological sites. It can overlap with the big sagebrush/grass type on the edges of ridges and benches.

Ponderosa pine and juniper are prominent but can be scattered, leaving open parks. The understory is scant in the ponderosa pine and juniper stands. The big sagebrush/grass vegetation type is the primary understory in the open timbered areas and open parks. In addition to a variety of non-game species, mule deer, elk, bighorn sheep and sharp-tailed grouse use this vegetation type for food and cover. Livestock forage production is low in the dense stands and use is often limited by slopes. Burning dense stands, where escape cover remains, improves forage production and use by both livestock and wildlife. Erosion hazards are high following fire, but recovery is quite rapid. Ponderosa pine and juniper provide material for fuel, posts and poles. Ponderosa pine provides a limited opportunity for lumber.

Douglas-Fir/Ponderosa Pine

This vegetation type is found on the north and east facing slopes in the river Breaks. Other than the presence of Douglas-fir, the vegetation composition is the same as the ponderosa pine/juniper type. Where timber is dense, the available forage for either livestock or wildlife is negligible, but increases in less dense timber.

These areas provide excellent cover for mule deer, bighorn sheep and elk. Due to the scant understory, few food plants are available and livestock forage value is low. Douglas-fir and ponderosa pine provide fuel, posts and poles and a limited opportunity for lumber. Douglas-fir provides a source of Christmas trees.

Mountain Forest Types

The Mountains and Foothills Province includes the Little Rocky, Judith, Moccasin, Snowy and a small part of the Little Belt Mountains. The vegetation within these areas is extremely variable because of a wide range of soil, parent material, aspect and climate.

Existing forest cover types include lodgepole pine, Douglas-fir, ponderosa pine, Engelmann spruce, white spruce and subalpine fir. The major types are lodgepole pine, Douglas-fir and ponderosa pine. All the listed tree species, except lodgepole pine, form climax series in some part of the area. Ponderosa pine is the potential forest overstory on the drier aspects of the Little Rocky, Moccasin, Big Snowy, Little Snowy and Judith Mountain ranges.

Douglas-fir is the natural forest overstory on soils with a higher moisture regime and cold temperatures. Subalpine fir lies above the Douglas-fir potential climax sites. Common forest understory plants associated with these forests are pinegrass, common snowberry, Idaho fescue, bluebunch wheatgrass, grouse whortleberry, elk sedge, heartleaf Arnica, Columbia needlegrass, bearded wheatgrass, mountain brome, Richardson needlegrass, twinflower, kinnikinnick, Utah honeysuckle, Woods rose, lupine, dwarf Vaccinium and blue huckleberry.

Common components of the associated grasslands are Idaho fescue, bearded wheatgrass, tufted hairgrass, Richardson needlegrass, Columbia needlegrass, mountain brome, threadleaf sedge, lupine and sticky geranium. Tufted hairgrass is often the dominant grass on more moist sites.

Mule deer, elk, Rocky Mountain goat, bighorn sheep, blue grouse, ruffed grouse, Merriam's turkey and numerous non-game mammals and birds are found in this vegetation type. This vegetation type provides yearlong food and cover for these species. Mule deer use browse and forbs as a food source and timbered areas for escape and thermal cover. White-tailed deer can be found in aspen groves within this vegetation type. Livestock grazing on forested BLM land is limited. Portions of the Judith and Little Rocky Mountains are unsuitable for livestock use.

Riparian-Wetland Vegetation Types

BLM's 1987 policy statement on riparian area management defines a riparian area as "an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependant on free water in the soil".

BLM defines wetlands as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and which, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions (Riparian-Wetland Initiative for the 1990s, 1991). Wetlands include marshes, shallows, swamps, bogs muskegs, wet meadows, estuaries and riparian areas.

The typical "prairie pothole" on the glaciated plains of the Phillips and Valley Resource Areas is a wetland by the above definition because they support vegetation "adapted for life in saturated soil conditions". The typical pothole does not get flooded every year and often has water for only a short time, but when it is flooded it supports wetland vegetation.

Although there are technical distinctions between riparian areas and wetlands, they are linked for discussion purposes in this document.

There are approximately 14,000 acres of riparian-wetland habitat in the planning area (see Table 3.6). Riparian-wetland areas are one of the most productive wildlife habitats and are generally preferred by livestock because the grass is green longer and water and shade may be available. Through the work of the Montana Riparian Association, riparian dominance types, habitat types and community types have been classified for Montana (Hansen, Chadde and Pfister, 1988, and Hansen, Chadde, Boggs and Joy, 1991).

**TABLE 3.6
TYPE AND EXTENT OF RIPARIAN
WETLAND AREAS ON BLM LAND***

Type	Judith	Valley	Phillips	Total
Streams, (miles)	151	252	196	599
Potholes (number)	—	66	2,456	2,522
Springs (number)	55	29	31	115
Seeps/Bogs (number)	—	226	—	226
Reservoirs (number)	555	1,367	1,943	3,865
Waterspreaders (acres)	—	5,755	—	5,755
Acre/feet Water Storage	6,257	52,639	6,218	65,114

*Water sources claimed for water rights as of December 31, 1988. Does not include sources built from January 1, 1989 to present.

Source: BLM, 1990

Dominance type refers to the dominant species, which are those with at least 25% canopy in the tallest layer of a sample plot (Hansen, Chadde and Pfister 1988).

Habitat type is defined as the land area which supports, or has the potential of supporting, the same climax vegetation. This is very similar in concept to ecological site, but ecological site is much broader; each ecological site contains many dissimilar habitat types. This is because the habitat type is a vegetation based classification while ecological site is a soil based classification.

Community type represents seral or disclimax communities, a lower level of succession for a habitat type (Hansen, Chadde, Boggs and Joy, 1991).

The habitat type and community type classifications can be used to make judgments concerning the potential natural vegetation of a given site (habitat type) as well as identifying seral stage of the current vegetation community (community type). A determination can thus be made concerning the desired plant community for a site.

With some exceptions, the late seral and potential natural vegetation stages of succession provide the most stable watershed protection and would be the desired plant community. Notable exceptions are the cottonwood and sandbar willow communities, which are successional to green ash or boxelder and are most prevalent in early and mid seral stages (Hansen, Boggs, Pfister and Joy, 1991). These community types are very desirable wildlife habitats and would normally be considered as a desired plant community.

Table 3.7 shows riparian habitat and community types known to be found on public lands in the planning area.

**TABLE 3.7
RIPARIAN AND WETLAND HABITAT TYPES AND
COMMUNITY TYPES OF THE PLANNING AREA**

Coniferous Trees

Douglas Fir / Red-Osier Dogwood Habitat Type
Ponderosa Pine / Common Chokecherry Habitat Type
Ponderosa Pine/ Red-Osier Dogwood Habitat Type
Rocky Mountain Juniper/ Red Osier Dogwood Habitat Type

Deciduous Trees

Box Elder / Common Chokecherry Habitat Type
Great Plains Cottonwood / Kentucky Bluegrass Community Type
Great Plains Cottonwood / Recent Alluvial Bar Community Type
Great Plains Cottonwood / Red Osier Dogwood Community Type
Green Ash/ Common Chokecherry Habitat Type
Peach-leaf Willow Community Type
Quaking Aspen / Red Osier Dogwood Habitat Type
Quaking Aspen / Kentucky Bluegrass Community Type
Russian Olive Community Type

Willow Communities

Sandbar Willow Community Type
Yellow Willow / Beaked Sedge Habitat Type
Yellow Willow / Bluejoint Reedgrass Habitat Type
Yellow Willow / Kentucky Bluegrass Community Type

Non- Willow Shrub Communities

Black Greasewood / Western Wheatgrass Habitat Type *
Common Chokecherry Community Type
Red-Osier Dogwood Habitat Type
Silver Sagebrush / Western Wheatgrass Habitat Type *
Succulent Hawthorne Community Type *
Thorny Buffaloberry Community Type *
Western Snowberry Community Type *
Wood's Rose Community Type *

Sedge Communities

Beaked Sedge Habitat Type
Nebraska Sedge Community Type
Water Sedge habitat Type

TABLE 3.7
RIPARIAN AND WETLAND HABITAT TYPES AND
COMMUNITY TYPES OF THE PLANNING AREA
(continued)

Non-Sedge Communities

Alkali Bulrush Habitat Type
 American Licorice Community Type
 Baltic Rush Community Type
 Common Cattail Habitat Type
 Common Reed Habitat Type
 Common Spikesedge Habitat Type
 Fowl Bluegrass Community Type
 Foxtail Barley Community Type
 Hardstem Bulrush Habitat Type
 Inland Saltgrass Habitat Type *
 Kentucky Bluegrass Community Type *
 Leafy Spurge Community Type *
 Prairie Cordgrass Habitat Type
 Red Glasswort Community Type
 Redtop Community Type
 Reed Canarygrass Habitat Type
 Smooth Bromegrass Community Type *
 Sharp Bulrush Habitat Type
 Spotted Knapweed Community Type *
 Water Smartweed Community Type
 Western Wheatgrass Habitat Type *

* These species can occur on upland as well as riparian-wetland sites.

Source: Hansen, Boggs, Pfister and Joy, 1991 and personal communication with Scott Miles, Montana Riparian Association...The reader is referred to the above publication for detailed descriptions of the above habitat types and community types including location, landform, vegetation characteristics, soil characteristics, potential natural community, disturbance stages, adjacent communities, management information and relationship to other classification systems.

Some of the most common and important riparian vegetation associations are discussed below. This discussion is intended to illustrate the vegetation associated with the typical riparian-wetland area on BLM land in the planning area. These discussions include combinations of habitat and community types.

Western Wheatgrass/Rushes/Sedges

The wet basins associated with glaciated plains are commonly called prairie potholes. Most of these basins are in the overflow ecological site. Typically, the smaller are flooded during early spring and dry in the late spring and summer. Western wheatgrass is the dominant plant species

on the margins of the flooded area and on potholes that are only briefly flooded. Potholes that are flooded for over a month are often barren of vegetation for the summer, but will fill in with grasses the next season, if not subject to prolonged flooding again. During wet periods, emergent sedges, forbs and rushes are the dominant vegetation. Common species include prairie bulrush, hardstem bulrush, northern arrowweed, water smartweed, beaked sedge and Baltic rush. Shallow water in reservoirs produces similar emergent vegetation. These temporary wetlands produce large numbers of waterfowl during wet springs. The lush vegetation is sought out by livestock when it is green. After about mid-July, cattle make little use of the coarse mature forage on dry potholes.

Rose/Snowberry

The rose/snowberry vegetation type is primarily on alluvial soils associated with slopes dropping into small drainages and drainage bottoms. It is typically found on overflow ecological sites. The grass/silver sagebrush vegetation type overlaps into this type on the sideslopes of drainages. This vegetation type will also occur as understory in the cottonwood/willow type. It is probably the most common riparian association on BLM land.

This vegetation type is dominated by deciduous shrubs such as rose and snowberry. Sandbar willow is typically found on the inner banks of intermittent streams. Buffaloberry, western wheatgrass, slender wheatgrass, Canada wildrye, alkali cordgrass, needleandthread, green needlegrass, American vetch, perennial sunflower, two-grooved milkvetch, western yarrow, lomatium, fringed sagewort, dotted gayfeather, scurfpea, hairy goldenaster and white milkweed are also common. Buffaloberry is an important associated dominance type, with the rose snowberry community as the understory type.

This vegetation type is important to many non-game mammals and birds, mule deer and sharp-tailed grouse for food and cover. Sharp-tailed grouse also use these areas for brood rearing and are heavily dependant on the buffaloberry as a food source and for cover. When adjacent to water, this vegetation type is important as nesting cover for waterfowl. When adjacent to small grain cropland, the habitat is used by pheasants and gray partridges. Livestock forage production can be high in open stands. Dense rose/snowberry stands are avoided by cattle.

Cottonwood/Willow

This vegetation type exists mainly on overflow, subirrigated or wet meadow ecological sites that are wet for long periods or the water table is high. The understory on most of these sites is of the rose/snowberry type. Common species are the same as the rose/snowberry type with an increased proportion

of willow and cottonwood. Boxelder and green ash trees also occur in this vegetation type.

This vegetation type is used by mule deer, white-tailed deer, sharp-tailed grouse, ring-necked pheasants, mourning dove, Merriam's turkey and high populations of non-game birds. It is the primary habitat on BLM land for white-tailed deer and pheasant, due to the dense understory. Livestock forage production is high.

Silver Sagebrush

Silver sagebrush is the dominant species on many overflow ecological sites, occupying alluvial soils on the upper reaches and drier zones adjacent to prairie streams. Associated species include western wheatgrass, green needlegrass, blue grama, sweetclover, dandelion and western yarrow.

This vegetation type is often associated with the rose snowberry type and the cottonwood willow type. It provides important habitat for a variety of non-game species. Antelope, mule deer, sage grouse and sharp-tailed grouse utilize this vegetation type for food and cover. Forage production varies from high in open sagebrush stands to scant in dense stands.

Greasewood

Greasewood is a common dominant plant on alluvial terraces of rivers and streams. The ecological site may be dense clay, claypan, saline upland or saline lowland. Understory vegetation is usually sparse and includes western and thickspike wheatgrass, Sandberg bluegrass, Nuttall alkaligrass, inland saltgrass, blue grama, knotweed, seepweed and cactus. This vegetation type provides cover for mule deer, antelope, sage grouse, sharp-tailed grouse and a variety of non-game. It is a valuable winter forage source for livestock and mule deer.

Threatened and Endangered Plant Species

No plants listed as endangered or threatened under the Endangered Species Act are known to occur within the planning area. Four species of special concern, *Psilocarpus brevissimus* (dwarf woolyheads), *Plagiobothrys leptocladus* (Slender-Branch Popcorn Flower), *Bacopa rotundi-folia* (Roundleaf Water-Hyssop) and *Elodea longivaginata* (long-sheath waterweed) have been identified in the planning area. Others that could occur include; *Ammania coccinea* (Scarlet Ammania), *Bidens comosa* (Begger-Ticks) and *Phacelis thermalis* (Hotsprings Phacelia).

Noxious Plants

Noxious plant infestations on BLM land are concentrated along the Missouri River, in the Rock Creek area of Valley County, in the Grass Range area of Fergus County, and in other scattered locations. Table 3.8 identifies the noxious plant species present and BLM's control efforts. Table 3.9 estimates the noxious plant infestations by resource area.

**TABLE 3.8
NOXIOUS PLANT CONTROL
ON BLM LAND**

Resource Area	Target Species	Acres Treated		Biological Agent	Average \$ 1986-1988
		Herbicide 1988	Grazed 1988		
Judith	Leafy Spurge Knapweeds	167	0	Flea Beetle Hawk Moth	\$11,000
Valley	Leafy Spurge Knapweed	100	200	Hawk Moth Flea Beetle	\$6,000
Phillips	Leafy Spurge Knapweed	6	0		\$320

Source: BLM, 1990

**TABLE 3.9
ACREAGE INFESTATION ESTIMATES
BY RESOURCE AREA FOR BLM LAND**

	Judith RA*	Valley RA	Phillips RA
Leafy Spurge	538	2,000	2
Spotted Knapweed	156	0	1
Diffuse Knapweed	400	0	0
Russian Knapweed	322	0	1
Canada Thistle	0	500	1,200
Whitetop	150	0	0

*This RMP includes that portion of Chouteau County south of the Missouri River. The figures shown are for the complete county. These figures reflect current inventories on BLM land.

Source: BLM, 1990

Ecological Status and Trend

The current ecological status and/or condition of BLM land is shown in Table 3.10 and the current trend is shown in Table 3.11. Riparian acres are included in the totals and riparian condition and trend is discussed in more detail as follows.

TABLE 3.10
ECOLOGICAL CONDITION (STATUS) ON BLM LAND

Resource Area	Condition Class									
	Excellent PNC		Good LateSeral		Fair MidSeral		Poor EarlySeral		Unclass. Rock/Shale	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Valley	30,899	3	534,959	53	421,053	41	10,757	1	22,218	2
Phillips	6,442	1	765,844	70	282,405	26	10,010	1	24,591	2
Judith	74,102	10	540,950	78	125,975	17	2,530	<1	0	0
Total	111,443	4	1,841,753	65	829,433	29	23,297	1	46,809	1

Source: BLM, 1990.

TABLE 3.11
ECOLOGICAL TREND (BLM LANDS)

Resource Area	Static	Up	Down
Judith	557,668	185,889	0
Valley	934,989	84,897	0
Phillips	915,005	163,394	10,893
Total	2,407,662	434,180	10,893

Source: BLM, 1990.

Ecological Status of Riparian Areas

An intensive inventory of stream riparian communities and current conditions is underway in cooperation with the Montana Riparian Association. Preliminary estimates from the Riparian Association inventory are that 65% of the stream riparian miles are in proper functioning condition. Proper functioning condition is a result of: reduced erosion; improved water quality; increased ground water recharge; more stabilized stream banks, more productive habitat; and more diverse stream channels (Hansen, Montana Riparian Association, personal communication). This preliminary estimate supports the conclusions of the 1989 inventory in the Valley RA. This sampling of 67 monitoring sites found that 68% were in late seral or PNC status. Both inventories correlate well with the 1979 Prairie Potholes Vegetation Environmental Impact Statement (EIS) condition inventory which showed that 64.7% of the floodplains were in good ecological condition.

It is conservatively projected that 60% of the acres in stream riparian zones are in late seral to PNC (proper to excellent) and 40% are in early or mid seral status (poor to fair). It is estimated that 60% of the stream riparian miles are also in proper functioning condition and 40% are in less than proper functioning condition.

GRAZING MANAGEMENT

BLM land complements private grazing land for about 48% of the area's ranchers that graze sheep or cattle. About 74,732 cattle use BLM land during the average 6-month grazing period. This represents about 40% of the summer forage requirements for the 186,700 beef cows on inventory in counties within the planning area (Montana Agricultural Statistics, 1988). Currently there are 867 livestock grazing permittees or lessees authorized to graze livestock on 1,163 allotments. The BLM administers permits and leases for 452,380 AUMs of livestock grazing (see Table 3.12).

TABLE 3.12
BLM PERMITTEES, ALLOTMENTS, PREFERENCE AUMS AND ACRES ALLOCATED*

Resource Area	Permittees	Allotments	AUMs(BLM)	Acres
Valley	187	266	139,236	1,019,530
Phillips	225	335	179,911	1,060,925
Judith	455	562	133,233	735,202
Total	867	1,163	452,380	2,815,657

*This includes lands within the UMNWSR.

Source: BLM, 1990

Cow/calf and yearling cattle are the most significant classes of livestock authorized. A few horses are authorized in conjunction with cattle permits. Three permittees graze sheep on allotments in the Judith RA. The Phillips RA has one sheep operation. No sheep are currently authorized to graze in the Valley RA under a regular permit. A band of sheep is being used for experimental leafy spurge control in the Rock Creek area of north Valley County.

Most of the BLM land within the planning area is allocated for livestock grazing. Unallocated lands are shown in Table 3.13 by resource area. The unallocated lands in the Judith RA consist of numerous small tracts of Section 15 lands plus the Square Butte Outstanding Natural Area (ONA). They also include parts of the Judith Mountains that are reserved for wildlife and watershed purposes. The area unallocated in the Phillips RA is in the Little Rocky Mountains, the Whitewater Lake Waterfowl Management Area and other small tracts. In the Valley RA, the unallocated acreage is in numerous small tracts.

**TABLE 3.13
BLM LAND UNALLOCATED FOR
LIVESTOCK GRAZING (ACRES)**

Resource Area	Acres
Valley	356
Phillips	28,367
Judith	8,355
Total	37,078

Source: BLM, 1990.

Allotment Categorization

Livestock grazing is managed by developing and monitoring allotment management plans (AMPs) and supervising grazing use. It is BLM policy to categorize allotments into a three-tier ranking system to determine priorities for implementation of AMPs and expenditure of range improvement funds. The three categories are I (Improve), M (Maintain), and C (Custodial) and reflect resource conditions and economic considerations for each allotment. The terms maintain, improve, and custodial relate to resource objectives for the allotment (i.e. whether conditions need to be improved, maintained, or if custodial management is appropriate because of relatively small amounts of BLM land). Current categorization of the allotments is shown in Table 3.14.

**TABLE 3.14
ALLOTMENT CATEGORIZATION**

Resource Area	Allotment Category					
	Category I No.	Category I Acres	Category M No.	Category M Acres	Category C No.	Category C Acres
Valley	60	641,346	163	363,609	43	14,931
Phillips	166	950,311	22	66,143	154	72,838
Judith	17	104,521	109	375,914	436	263,122
Total	243	1,696,178	294	805,666	633	350,891

Source: BLM, 1990

Grazing EIS Implementation

The Missouri Breaks Grazing and Prairie Potholes Vegetation EISs, direct development and management for allotments. Through fiscal year 1988, 207 AMPs have been implemented in the planning area. These AMPs involve 1,573,209 acres of BLM land. AMPs are shown in Table 3.15 by allotment category and resource area and also in Appendix M.

**TABLE 3.15
LIVESTOCK ALLOTMENT MANAGEMENT PLANS**

Resource Area	Allotment Category					
	Category I No.	Category I Acres	Category M No.	Category M Acres	Category C No.	Category C Acres
Valley	37	566,362	25	228,984	0	0
Phillips	74	488,888	6	25,243	3	4,349
Judith	10	36,331	51	221,757	1	1,295
Total	121	1,091,581	82	475,984	4	5,644
Percent	58	69	40	30	2	<1

Source: BLM, 1990

Overall, 54% of the BLM land in the planning area is included in allotment management plans. Each AMP varies in complexity from season-long grazing to combinations of rest rotation and deferred rotation grazing methods. Improvement or maintenance of ecological condition to meet objectives established in the Missouri Breaks Grazing and Prairie Potholes Vegetation EISs is the primary goal of each AMP. Table 3.16 shows the proposed AMPs that remain to be completed.

**TABLE 3.16
PROPOSED AMPs TO BE COMPLETED**

Missouri Breaks		Prairie Potholes	
Judith	41	Valley	16
Valley	1	Phillips	7
Phillips	12		
Total	54	Total	23

Source: BLM, 1990

Although 60% of the riparian areas are in good or better condition, in many cases management objectives have not been met.

Riparian Management

As each AMP with manageable riparian habitat is prepared or revised, riparian objectives are included and management practices are keyed to improve or maintain riparian values. Under current management, 126 miles of streams are meeting objectives, 90 miles are not meeting objectives and for 383 miles it is unknown if objectives are being met. This is because either the AMP has been in effect only a short time or the potential of the stream reach is unknown (see Appendix J).

Typical grazing management practices used to enhance riparian areas include riparian pastures, scheduling all grazing in either early spring or fall to avoid hot season use, or shortening the length of grazing. Rotational grazing, which limits hot season use to one year in three, has also proven effective in enhancing riparian areas. Other management prescriptions will be used to improve degraded riparian areas, based on each individual area's characteristics and the livestock operators needs. Currently, 25 allotments and 58 miles of stream are managed under an AMP that meet these criteria. Riparian exclosures have been constructed as shown in Table 3.17.

TABLE 3.17 RIPARIAN EXCLOSURES ON BLM LAND			
Resource Area	Purpose	No.	Acres
Judith	Riparian Potential	2	41
Valley	Riparian Potential	5	214
	Reservoir Exclosure	18	667
	Seeps Below Reservoirs	965	
	Springs	2	3
Phillips	Reservoir Exclosure	26	1,502
	Springs	13	10
	Riparian Potential	9	191
Total		84	2,693

Source: BLM, 1990

Rangeland Improvements

Most rangeland improvements are planned as part of the AMP process, to meet multiple use objectives. The purpose of these improvements is to provide livestock water, establish areas of use, allow for pasture rotations, and to improve forage and watershed conditions. Table 3.5 shows the improvements in each resource area.

WILDLIFE AND FISHERIES

The responsibility for managing wildlife on BLM land is divided among the Montana Department of Fish, Wildlife and Parks (MDFWP), which manages the wildlife and the BLM, which manages the wildlife habitat on BLM land.

A variety of habitat types on BLM land support many types of wildlife. Riparian, shrub and woodland habitats support the greatest diversity and quantity of wildlife because of diverse layers of trees, shrubs, grasses and forbs.

Threatened and Endangered Wildlife Species

An endangered species is one that faces extinction throughout all, or a significant portion of its range. Threatened species are those likely to become endangered in the foreseeable future.

Historical and potential habitat for six species of wildlife which are federally classified as endangered or threatened occur within the planning area. These species are the bald eagle, peregrine falcon, black-footed ferret, gray wolf, least tern and piping plover.

The bald eagle is the only endangered species which routinely uses BLM land within the planning area. Very few breeding pairs nest in the planning area, however, historical nesting sites exist along the Missouri, Judith and Milk Rivers and at Frenchmen Creek Reservoir. The planning area is used during spring and fall migration. Peak use months for the bald eagle are March, April and November. The Missouri and Milk Rivers provide good habitat for eagles during migration. Bald eagles are present during mild winters on and in the vicinity of the Missouri and Milk Rivers; concentrating in areas of open water where waterfowl and fish are available as food or where carrion can be found. Bald eagles migrate through the area somewhat concurrent with the waterfowl spring and fall migrations.

Peregrine falcons have been sighted during spring and fall migrations. There are no known breeding pairs or historical nesting areas in the planning area. Peak months for falcon occurrence are March, April and November. Falcons have been observed in the Phillips RA during late April and May; suggesting nestings may be occurring. Peregrine falcons migrate through the area following the waterfowl migration.

There are historical records of black-footed ferrets in the Phillips RA. Flath and Clark (1986) list two specimens for Phillips County (December, 1923 and January, 1924). There have been recent (1983-present) unconfirmed sightings in Phillips County, and skeletal remains were found in 1983 on the Fort Belknap Indian Reservation. The

historic range of the ferret in Montana corresponds to the range of the black-tailed prairie dog. Additional information is available in the Prairie Dog Complex ACEC discussion later in this chapter.

Gray wolves (suspected transients from Canada) have been reported in the planning area. No critical habitat exists in the area, though an occasional wolf is seen.

The least tern has been found near the planning area on islands at Fort Peck Reservoir and on an island in the Missouri River below Fort Peck Dam near Poplar. Potential habitat may exist in areas with piping plover habitat. The two species often nest together in colonies where sandy to gravelly beaches occur on permanent water bodies.

Piping plovers have gained national, as well as local attention, since the bird was listed as a threatened species in January, of 1986. The first record of nesting piping plovers in Montana was at Bowdoin National Wildlife Refuge in 1967. Plovers were first observed at Nelson Reservoir in 1986. Successful nesting has occurred at both locations since 1986, but not every year and/or at both locations. A 1984 survey in central and southern Saskatchewan, just north of the Phillips and Valley RAs found 773 plovers. The Phillips and Valley RAs are in the migration corridor of the Saskatchewan population. Plovers in Montana primarily nest on sand/pebble beaches of large permanent reservoirs and natural lakes. Plovers in North Dakota use saline wetlands. Both habitats occur in the planning area, however no piping plovers have been observed on BLM land in the planning area.

The planning area contains habitat for several ESA candidate species identified by the FWS. Those species are the Swainson's hawk, ferruginous hawk, mountain plover and long-billed curlew. The ferruginous hawk, mountain plover and long-billed curlew are Category 2 species that are being considered for listing. The Swainson's hawk is a Category 3C which was considered for listing, but at this time is no longer subject to substantial threats and will not receive special attention in this document.

The ferruginous hawk is also found on the prairies. They migrate into the area in late March and leave in late October. Ferruginous hawks nest on the ground, using outcrops of sand stone or bentonite. The hawk normally roosts on the ground, but is occasionally seen in a tree or on a post. Ferruginous hawks hunt the prairie for small mammals including prairie dogs and ground squirrels.

The mountain plover is found on the open shortgrass (blue grama clubmoss) prairies. They migrate into the area in late April and are gone by early September. The plover nests on

open ground associated with gravel pavement. Most of the known plovers in the planning area are associated with black-tailed prairie dog towns. This is unique to this area. Throughout the remainder of the plover's range (Colorado and Wyoming) the plover uses the short-grass prairie. The plover relies on insects and seeds for summer food.

The long-billed curlew is found on the grasslands. They migrate into the area in late March and leave in late September. The curlew nests in the grasslands and forages nearby for insects and seeds.

Big Game

Elk

Elk can be found in most mountainous areas and in the Missouri River Breaks. Elk were transplanted from Yellowstone Park into most of these areas. The largest elk herd in the planning area, approximately 3,000 head, is in the Missouri River Breaks (MDFWP, 1989). Population increases and expansion into unoccupied habitat has occurred on the south side of the Missouri River from Cottonwood Creek in the Musselshell Breaks and west to the Judith River and south to the North Moccasins. Elk on the north side of the Missouri River extend along the Breaks in south Blaine County and east through Valley County. Scattered elk sightings have been reported in extreme southwest Phillips County along Bull, Antelope and Cabin Creeks. Although habitat conditions are similar to the CMR, only a few elk are present and no permanent elk herd exists at this time. Elk migrate to and from the Missouri River Breaks to the Little Rocky Mountains. Habitat exists for elk in these mountains; however, a permanent elk herd does not exist at this time. The Judith Mountains contain a population of about 100 to 200 elk. Approximately 100 to 150 elk reside in the Little Snowy Mountains and another 100 to 150 elk reside in the Big Snowy Mountains. A large population of elk reside in the Little Belt Mountains. Most of these elk occur on FS, private and Judith Game Range lands.

Elk inhabit about 594,000 acres of crucial habitat on BLM land (see Table 3.18). Food habit studies have been conducted in the Breaks and in various mountain ranges throughout the planning area. These studies show a food preference for grasses, except during the spring when forbs are preferred. Ground and aerial surveys indicate major winter and spring use in open grassy parks on south facing slopes surrounded by thermal cover, usually in the form of conifers, while summer and early fall use occurs on the cooler north facing slopes.

TABLE 3.18
ACRES OF CRUCIAL HABITAT ON
BLM LAND FOR IMPORTANT WILDLIFE SPECIES
IN THE PLANNING AREA

Animal Species	Resource Area			Total
	Judith	Valley	Phillips	
Elk	411,000	51,000	132,000	594,000
Mule Deer	382,000	328,000	244,000	954,000
White-tailed Deer	7,000	5,000	7,000	19,000
Pronghorn Antelope	219,000	165,000	264,000	648,000
Bighorn Sheep	17,000	N/A	4,000	21,000
Rocky Mountain Goat	2,000	N/A	N/A	2,000
Sage Grouse	208,000	117,000	122,000	447,000
Sharp-tailed Grouse	70,000	128,000	100,000	298,000
Ring-necked Pheasant	1,000	4,000	3,000	8,000
Gray Partridge	Unknown	Unknown	Unknown	Unknown
Turkey	28,000	N/A	2,000	30,000

Source: Dept. of Fish, Wildlife and Parks and BLM, 1990.

Deer

Mule and white-tailed deer are the most numerous big game animals in the planning area. Mule deer easily outnumber white-tailed deer. Mule deer inhabit drainage bottoms, broken side slopes, wooded breaks and mountain foothills; while white-tailed deer use drainage bottoms with riparian and brushy vegetation and areas adjacent to private cropland. BLM land provides about 954,000 acres of crucial habitat for mule deer and about 19,000 acres of crucial whitetail habitat. Deer populations vary depending on the severity of winters; quantity and quality of forage, and other factors. Currently mule deer and white-tailed deer populations appear to be increasing or remaining stable.

Grasses are used for a short time during the spring, until forbs become available, followed by extensive use of forbs with some browse during the summer. Heavy use of big sagebrush, silver sagebrush, rubber rabbitbrush, skunkbrush sumac, western snowberry and rose occurs during the fall, winter and early spring. Sagebrush may be the only available food source during periods of deep snow on the plains.

The deer populations in the various mountain ranges migrate from higher elevation summer ranges to lower elevation winter ranges, often relying on private agricultural lands. The plains deer populations do not migrate, but concentrate on south facing slopes which are more snow free and warmer during winter months. These deer move into the Breaks during severe weather. Escape and thermal cover is very important. Agricultural lands are important to plains deer throughout the year.

Antelope

Pronghorn antelope habitat and populations are abundant. Current survey data from the MDFWP indicates good fawn production and increasing antelope populations. There are approximately 648,000 acres of crucial antelope habitat on BLM land (Table 3.18).

Habitat frequented by pronghorn antelope varies with the time of year. Seasonal changes in habitat requirements are due to changing food requirements, preferences, availability, cover requirements and related factors. The optimum habitat for antelope consists of open, rolling sagebrush-grassland, as free from human encroachment as possible.

Resident and Canadian herds migrate along major drainages to in the Milk River Valley during severe winters. These herds are dependent on browse species, primarily silver sagebrush and creeping juniper. Antelope populations south of the Milk River are primarily non-migratory and rely on big sagebrush. Antelope in Phillips and Valley Counties migrate south of the Missouri River in severe winters.

Antelope use a variety of vegetation types which include grassland, grassland-shrub, shrub and cropland in the spring, summer and early fall. During the winter, antelope use the sagebrush-grassland type almost exclusively. The greasewood-sagebrush type receives limited use. All other vegetation types are of minor importance for winter use. Browse, primarily sagebrush, is vital in the antelope's diet. Their winter diet consists of at least 80% sagebrush. Generally, quality habitat contains sagebrush 12 to 24 inches in height with 15 to 50% canopy cover. Forbs become important during the spring, summer and fall, while grasses are of minor importance yearlong.

Rocky Mountain Bighorn Sheep

Bighorn sheep were originally found both in the mountains and on the plains. Homestead settlement soon restricted bighorn sheep populations to rugged mountain habitat. The distribution of bighorns in Montana has been reestablished, due to live trapping and transplanting to suitable areas they previously occupied.

In 1957, the MDFWP selected the Two Calf area in northern Fergus County as the site for reestablishing bighorns in the Missouri River Breaks. Between 1958 and 1961, they released 43 bighorns, of Montana origin in the Two Calf enclosure. The population increased to between 75 to 100 bighorns by 1971. During the winter of 1971-1972, most of the bighorns died, only 18 survived. The present population is estimated at 30 sheep.

Bighorn sheep were transplanted into the Little Rocky Mountains in 1972, and again in 1974. A total of 42 sheep were released, 21 animals in each transplant. Today the estimated bighorn sheep population is 60.

Twenty-eight bighorn sheep were released on the Knox Ranch in the Judith RA along the Missouri River in 1980. A portion of the herd crossed the river and have been periodically observed in small groups. Current data indicates a population of about 100 to 110 sheep, of which 30 to 40 are north of the river. The population appears to be healthy and has expanded from the mouth of the Judith River down to Two Calf Creek.

The Mickey-Brandon Butte herd was released in March of 1980, in the Phillips RA. The herd has remained primarily on the CMR. A small herd from Mickey-Brandon Butte is now becoming established near Iron Stake Ridge, which may involve BLM land in the future.

There are approximately 21,000 acres of crucial bighorn sheep habitat within the planning area (see Table 3.18). Their preferred habitat is governed by availability of escape cover, protection from severe weather and forage availability during the winter. Typical escape areas include cliffs, talus slopes, caves, steep rocky ridges and dense timber. Protection areas are leeward slopes, caves, rock overhangs, dense timber stands and bottomland areas. Preferred wintering areas are rocky ridges, steep southerly slopes blown free of snow in grassland, sagebrush-grassland and conifer types.

Bighorn sheep rely heavily upon grass in the yearlong diet. Forbs, browse, lichens and mosses make up the rest of the diet of the bighorns and are used when available to supplement the grass diet of bighorns.

Rocky Mountain Goats

A successful introduction of goats, one male and three females, was made on Square Butte in 1941, however after 1965 the population decreased to near zero for unknown reasons. A reintroduction of seven goats was made on Square Butte in 1971 and the current population now varies from 35 to 50. About 2,000 acres of crucial goat habitat exist in the area (see Table 3.18).

Mountain goats are found in rough habitat consisting of rugged and broken terrain with cliffs, ledges, projecting pinnacles and talus slopes. Timber is used during severe winter snow storms, spring kidding and extremely hot summer days.

Their food preferences vary throughout the year and depend upon palatability and digestibility. Grasses, sedges and rushes are important in their yearlong diet. Browse, forbs, and conifers supplement their diet during the various seasons of the year.

Upland Game Birds

Sage Grouse

Sage grouse occupy approximately 447,000 acres of crucial habitat (see Table 3.18). They are primarily associated with the big and silver sagebrush communities in grassland-shrub and shrub vegetation types. Populations fluctuate within the habitat perimeters and appear to be declining due to the continual reduction of sagebrush habitat, principally because of expanding croplands and drought.

The importance of sagebrush to sage grouse is well documented. Due to their lack of a muscular gizzard, they eat only soft material. They prefer sagebrush with a canopy cover greater than 15% for cover and food. Sagebrush provides 80 to 100% of the sage grouse's winter diet. Winter ranges contain shrubs that are at least 12 inches tall and are usually within 2 miles of mating grounds.

Nesting habitat is located under sagebrush, usually within 2 miles of mating grounds. The tallest and most robust sagebrush plants in the stand ranging from 6.6 to 31.6 inches in height with a canopy cover between 20 to 50% are normally used. Forbs become an important dietary component for both juveniles and adults in the spring and summer. There are currently 237 known sage grouse leks, 122 of which are on BLM land.

Sharp-tailed Grouse

Great Plains sharp-tailed grouse were once abundant throughout the plains and lower foothills east of the Continental Divide. They are still relatively abundant in areas where native range is in good condition. Sharp-tailed grouse, under ideal conditions, are more abundant on upland mixed prairie and less abundant in sagebrush-saltbush on the plains. A severe winter kill of buffaloberry shrubs in 1984 severely reduced winter forage and cover for sharptails. The droughts during the 1980s also contributed to the shrub loss.

The planning area has about 298,000 acres of crucial habitat (see Table 3.18). Important habitats include grassland, grassland shrub, riparian, woodland and agricultural types. There are 569 known sharp-tail leks in the planning area, 192 of which are on BLM land.

Habitat for sharp-tailed grouse varies. Habitat requirements change due to food, water, rest and social interactions during various seasonal activities. Suitable habitat must furnish the minimum cover required for nesting, brooding, loafing and roosting as well as escape cover within the range of feeding areas. If these conditions are provided, good populations of sharp-tailed grouse can exist with intensive cultivation and livestock grazing.

Sharptails use a variety of plant communities within the mixed prairie grasslands. Nesting occurs on the uplands in dense stands of tall grass left from the previous growing season. This provides protection against predators and adequate shelter during nesting. If the grass cover is not available, the hen will seek out adjacent brushy coulees.

During the winter, woody draws and woodlands are used. If snow is not available for burrowing during severe winter weather, shrubby vegetation must be available for thermal cover. Sharp-tailed grouse may move some distance to find these shrubs.

Other Upland and Migratory Game Birds

BLM lands in the planning area also contain 28,000 acres of occupied Merriam's turkey habitat. These populations are located mostly in the Moccasin, Judith, Big and Little Snowy Mountains with a small population still existing in the Little Rockies. These populations have grown from introductions made in 1954, and supplemented in the late 50s and early 60s. An introduction of turkeys in 1957 in the Missouri Breaks was ultimately unsuccessful with the last turkeys disappearing in the mid 1970s.

Ring-necked pheasants inhabit about 8,000 acres of public land, mostly in wetland areas. Gray partridge habitat occurs throughout the planning area. Blue grouse and ruffed grouse inhabit forested mountain and mountainous brush areas respectively. Mourning dove, a migratory game bird, is found throughout the planning area.

Waterfowl

The northern portion of the planning area is within the Prairie Potholes region (300,000 square miles), the most important waterfowl producing area in North America. In wet years, the Prairie Potholes region has the potential of producing over half of the annual duck population in North America, while containing only 10% of the duck breeding area. Approximately 458,000 acres per year of wetland habitat has been lost to agriculture and drainage in the Prairie Potholes region from the mid 1950s to the mid 1970s. This has increased the importance of wetland habitat on BLM land in Montana, even though this habitat makes up less than 1% of the Prairie Potholes region in North America.

Canada geese, snow geese, white-fronted geese, tundra swans and 20 species of ducks occur in the planning area. In addition to the Canada goose, common nesting species are the mallard, northern pintail, blue-winged teal, green-winged teal, American wigeon, northern shoveler, lesser scaup and gadwall.

While natural potholes are crucial for waterfowl nesting, reservoirs have become increasingly important during dry years. They are often the only water sources for waterfowl during drought periods (see Table 3.19).

TABLE 3.19
BLM WATER IMPOUNDMENTS
(PITS, RESERVOIRS, POTHOLE) AND
ISLANDS WITHIN THE PLANNING AREA*

Resource Area	Impoundments	Islands
Judith Valley	555	142
Phillips	1,433	563
	4,399	1,079
Total	6,387	1,784

*Water sources claimed for water rights as of December 31, 1988. Does not include sources built from January 1, 1989 to present.

Source: BLM, 1990

Waterfowl depend primarily on cover in the upland areas and on islands in reservoirs during spring nesting. It is estimated that duck production varies from one to nine ducks per surface acre of water, depending on grazing management and amount of nesting cover in upland areas. Early nesters, such as mallards and northern pintail, begin nesting in late April and are dependent upon old growth, residual cover, from the previous year. Blue-winged teal, American wigeon, and gadwall begin nesting about 4 weeks later and are dependent on the current year's cover conditions. Broods use emergent aquatic and shoreline vegetation for food and cover during the summer. Nesting and brood cover in the area is generally in poor condition where there is heavy livestock use. The planning area produces about 78,500 ducks annually during a normal year (Gjersing, 1971 and Munding, 1975).

Manmade islands, important to Canada geese, some duck species and many non-game birds have been constructed throughout the planning area (see Table 3.19). These islands provide security from predators during nesting. It is estimated there is a 70% goose nesting pair occupancy on the ponds containing islands compared to 30% on ponds without islands. Production averages four goslings per pair. Canada geese are expanding their range from large historic breeding waters to reservoirs scattered throughout the planning area. About 5,000 geese are produced on the known structures (McCarthy, 1973).

Major rivers within the planning area, namely the Milk, Judith and Missouri also provide waterfowl habitat. Canada geese, mallards, common mergansers, wood ducks and goldeneyes are the primary species nesting on the rivers. Canada geese nest primarily on river islands. The largest number and variety of waterfowl occur during fall and spring migration, when the birds use grain crops and marshes away from the river and return to the river for roosting, cover and some feeding. Many smaller creeks also provide important waterfowl nesting habitat when precipitation is normal or above.

Fisheries

Fisheries are primarily confined to reservoirs and the Milk, Judith and Missouri Rivers at the lower reaches of their major tributaries and a few short stretches of mountain streams. Both warm and cold water fish species occur.

There are 53 reservoirs that support fisheries on BLM land within the planning area. Major species include rainbow trout, largemouth bass, crappie and yellow perch. Game fish in reservoirs are generally stocked by the MDFWP every other year. Many of these populations winter kill about every 4 years. Trout do not reproduce in these areas and must be restocked periodically. Current grazing management on most reservoirs does not allow establishment of a good riparian zone or provide adequate bank protection. Water quality is dramatically reduced in fishing reservoirs under livestock use.

Nongame Birds and Mammals

Numerous nongame species occur throughout the planning area. Several species have been identified by the MDFWP to be of Special Interest or Concern (see Table 2.1, Chapter 2). These are species whose numbers and/or habitat are limited or may be in future years if not properly managed. These species receive special management consideration in all phases of land use planning for maintenance or enhancement of their respective habitat.

The Tate-Poetter Cave is a hibernaculum for big-eared bats. Big-eared bats are a Montana Species of Special concern and a FWS Candidate 2 species.

The most abundant terrestrial furbearers in the area include coyote, red fox, striped skunk, badger, raccoon, long-tailed weasel and bobcat. Common aquatic species include the muskrat, beaver and mink.

At least 253 black-tailed prairie dog towns, covering over 22,789 acres, occur in the planning area (see Table 3.20 and Figure 3.2). The Fort Belknap Indian Reservation and CMR are adjacent to the planning area and contain about

16,500 additional acres of prairie dog towns. The prairie dog towns are being studied as a potential reintroduction site for the black-footed ferret. Additional information is given in the Prairie Dog Complex Area of Critical Environmental Concern (ACEC) discussion later in this chapter.

TABLE 3.20
KNOWN BLACK-TAILED PRAIRIE DOG TOWNS
IN THE PLANNING AREA

Resource Area	Number of Towns	BLM Acres	State Acres	Private Acres	Total Acres
Judith Valley	7	71	0	12	183
Phillips	11	800	40	20	960
	235	13,220	2,070	6,356	21,646
Total	253	14,091	2,110	6,588	22,789

Source: BLM, 1990

Black-tailed prairie dogs have become a significant resource since prairie dog shooting began increasing in the Phillips RA in 1983. This has taken on national importance and is considered one of the best areas of its kind in the United States. Approximately 300 shooters visit the Phillips RA annually. The shooters spend an average of 4 days in the area. Shooting prairie dogs has slowed their town expansion rate and from 15% to 3% per year.

The prairie dog towns also provide sightseers with an opportunity to see black-tailed prairie dogs and mountain plover, burrowing owl, ferruginous hawk and other species. Prairie dog towns provide an island of unique habitat that attracts a large number of wildlife species (Koford, 1958 and Reading et al, 1989).

FORESTRY

There is an estimated 78,200 productive forested acres of BLM land in the planning area (in the Judith and Phillips RAs). Approximately 29,000 of these acres are located in the Little Rocky Mountains and the mountain ranges in the Judith RA. These forested lands are part of the Central Montana Sustained Yield Unit which furnishes an annual cut of about 650,000 board feet on a sustained yield basis. Timber is located on all three soil subgroups of the Mountain and Foothill Physiographic Province. These 29,000 acres furnish 95% of the forest products from BLM land. The remaining 49,200 acres are located in the Breaks of Phillips, Fergus and Petroleum Counties. Timber in the Breaks is found on clay shale uplands of the sedimentary plains.

Figure 3.2 Prairie Dog Towns in the Valley and Phillips Resource Areas.

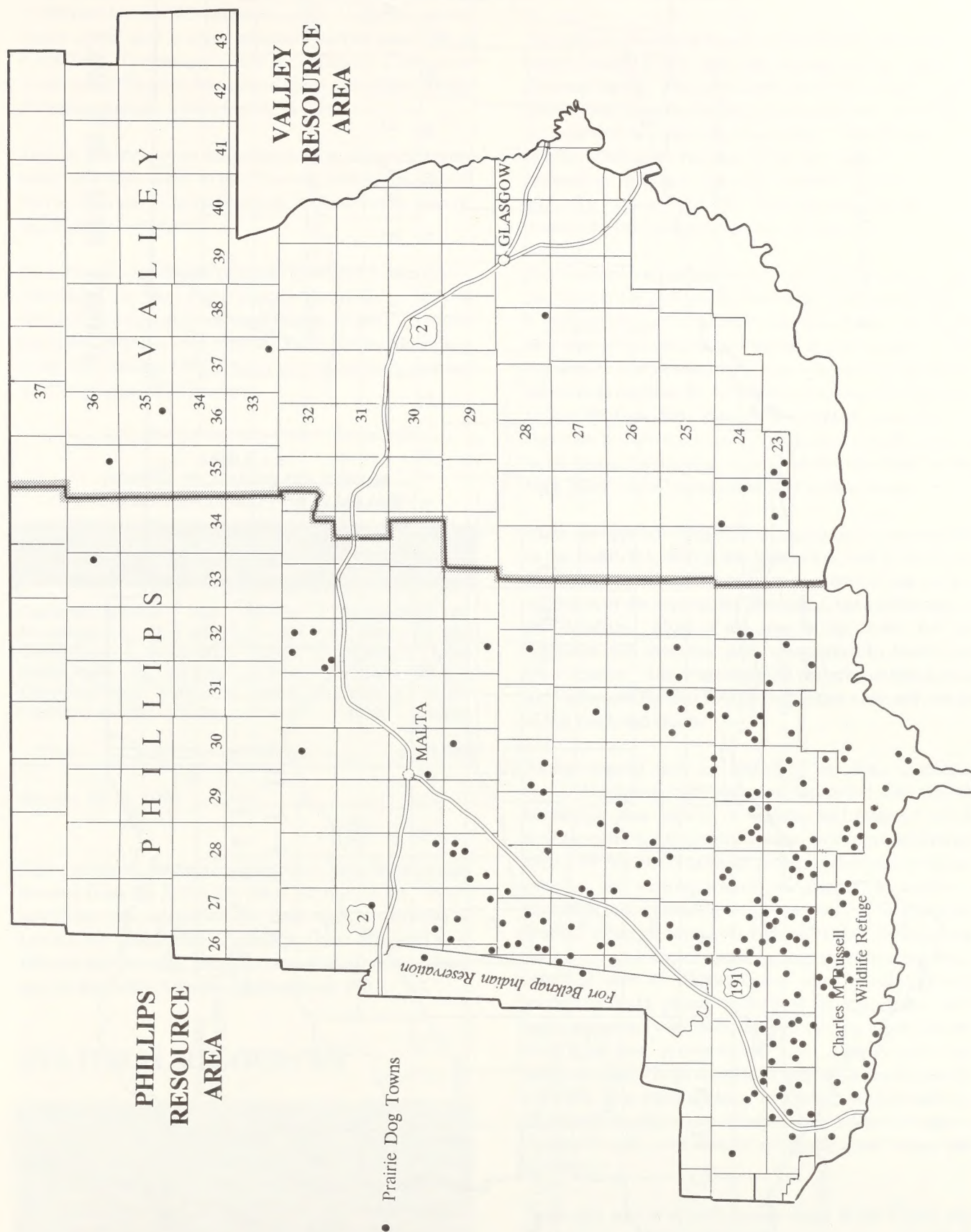
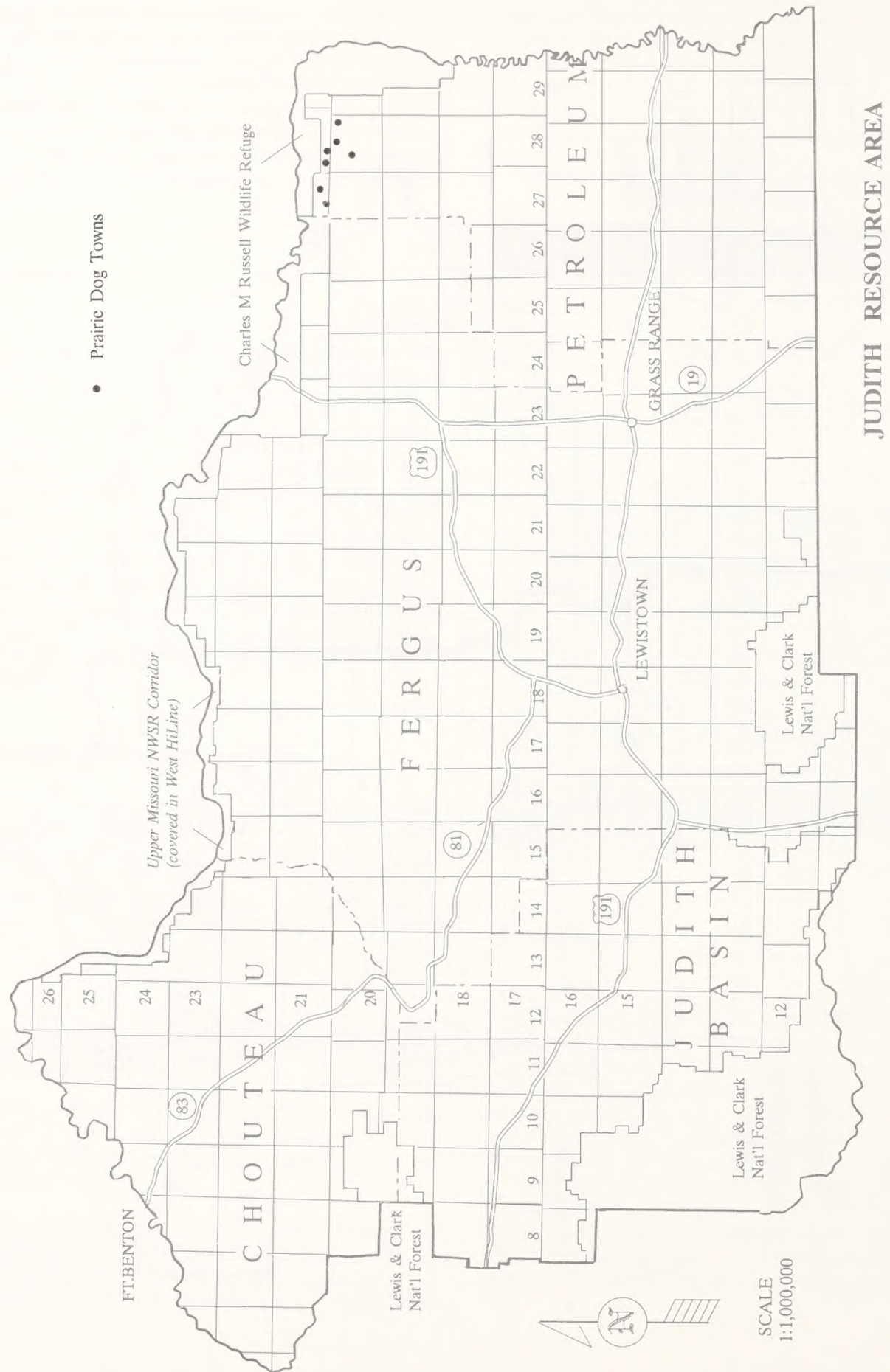


Figure 3.2 Prairie Dog Towns in the Valley and Phillips Resource Areas. (continued)



Ponderosa pine is the dominant commercial tree species with lesser amounts of Douglas-fir, lodgepole pine, Engelmann spruce and Rocky Mountain juniper. Ponderosa pine and Douglas-fir are the most wide spread species ranging from the Breaks to the mid-elevation (2,400 to 5,200 feet) level of the mountain ranges. Lodgepole pine is found on the mid to upper mountain elevations (4,600 to 6,400 feet). Engelmann spruce is confined to a few moist areas on BLM land at the mid and upper elevations. Rocky Mountain juniper is found in the Breaks.

Groves of cottonwood and willows grow along the loamy and clayey floodplains of the Missouri, Judith, Musselshell and Milk Rivers. The total acreage of these two species on BLM land is very small.

Past demand for forest products from the Little Rocky Mountains has been high since the mountain range is so isolated. Most products are used locally. Table 3.21 shows the forest products sold from the Little Rocky Mountains from 1978 through 1987. The value is the amount received for the various forest products.

**TABLE 3.21
FOREST PRODUCTS SOLD FROM
1978 THROUGH 1987 FOR BLM LAND**

Product	Little Rocky Mtns.		Judith RA	
	No. Sold	Value	No. Sold	Value
Sawtimber (MBF)	222	\$3,996	6,908	\$232,288
Houselogs	964	1,446	290	435
Corral Poles	11,330	1,699	9,510	1,499
Fence Posts	33,800	2,704	137,045	11,060
Christmas Trees	3,215	3,215	2,369	2,369
Fuelwood (Cords)	1,490	1,490	6,080	6,281
Total		\$14,550		\$253,932

Source: BLM, 1990

Forest products, especially sawtimber, have been in high demand from the Judith RA since the mid 1970s. Every sawtimber sale advertised has been sold to sawmills at Lewistown, Judith Gap, Roundup, Grass Range, Utica, Hobson and Garneill. Table 3.21 shows the forest products sold in the Judith RA from 1978 through 1987.

CULTURAL RESOURCES

Cultural resources are broadly defined by BLM as any cultural property or traditional lifeway value. Cultural properties are definite locations of past human activity, occupation or use. Traditional lifeway values are the traditional systems of religious belief, cultural practice or social interaction that are not closely identified with definite locations.

Cultural properties are generally similar in terms of type, composition, and significance throughout the planning area. The major differences are the archaeological site density and distribution patterns which differ north and south of the Missouri River.

The prehistoric period began around 14,000 years ago and ended around 1855, with the signing of the Blackfoot Stevens Treaty. The inhabitants of this area were mostly hunters and gatherers utilizing the natural resources (plant and animals) for subsistence activities. Even though some species of big game became extinct and changes in weapon technology improved hunting proficiency, hunting and gathering was a stable life style for prehistoric Native Americans that lasted thousands of years.

Based on previous archaeological investigations, the average site density for prehistoric sites in the Valley and Phillips RAs is one site per 100 acres or six to seven sites per section on unfarmed or undisturbed terrain of glacial origin. The site density is believed to be somewhat lower in the Breaks area and throughout the Judith RA. One area, the Big Bend in the Phillips RA, has archaeological resources of particularly high site density and unusual significance. A more detailed discussion is given in the Big Bend, of the Milk River ACEC description later in this chapter.

There are approximately 600 archaeological sites recorded in the Judith RA, 900 in the Valley RA, and 2,180 in the Phillips RA. The difference in numbers is not only a reflection of the inventories conducted, but a difference in site densities. Most of the sites in the Judith RA are habitation and industrial sites, represented by hearth and lithic scatters. The overwhelming majority of the sites in the Valley and Phillips RAs are habitation sites and consist of tipi rings and cairns.

Archaeological sites are classified into four functional types (habitation, procurement, industrial and ritual). Habitation sites consist of features and material which indicate everyday domestic activities such as manufacturing tools, clothing, and ornaments; preparing food and medicine; cooking; and securing warmth and shelter. Examples of such sites in the planning area are scatters of camp debris, hearths, stone piles (cairns) and tipi rings. Procurement sites consist of features representing specific subsistence activities such as hunting bison, deer, or antelope and gathering wild plants. Buffalo jumps, traps, and impoundments (with associated processing areas) are the most common procurement sites. Such sites are characterized by large deposits of bones at the base of bluffs and cliffs or in steep coulees. Industrial sites are made up of scatters of stone waste debris, hammer stones, rough or damaged tools, and chunks of fine-grained stone and quartzite.

The major source of tool-quality stone in the Valley and Phillips RAs is the ubiquitous glacial deposits; in the Judith

RA, the major sources are at the base of the mountains and in outwash terraces. Ritual or ceremonial sites include rock art sites, burials, medicine wheels, intaglios, specific cairns, and rock or wooden structures which may have been used as shaman or vision quest facilities. These sites (potential traditional cultural properties) occur throughout the planning area, but are concentrated in the Phillips and Valley RAs. Known and currently used traditional cultural properties are limited to the Phillips RA. However, continued information gathering efforts in the Judith and Valley RAs indicate that the potential exists for currently used traditional cultural properties in those areas.

The protohistoric period is a bridge between the prehistoric period between when no written records were kept and the historic period when reasonably accurate and complete written records were kept (roughly 1805 to 1855). There are important protohistoric period cultural properties in the planning area, but most are located on private land or other federal and state land. Such sites include Lewis and Clark campsites, trading posts, military posts, steamboat landings, woodhawk cabins and U.S. Army and Indian battle sites. Historic trails once passed through the planning area, including the Carroll Trail, the North Overland Road and the Nez Perce Trail. Most of the historic sites and trails exist mainly in the historical literature; few have ever been documented and evaluated on the ground.

Later in the historic period, homesteading brought settlers into the planning area by the thousands. The region was quickly settled by Germans and Scandinavians from the midwest, as well as by eastern European immigrants like Bohemians and Yugoslavs. By the end of World War I however, a severe drought had begun and food prices had fallen drastically. By 1925, one out of every two homesteaders had lost or abandoned his farm. Many homesteads reverted to the government through provisions of the Bankhead-Jones Farm Tenant Act which authorized the government to buy homesteaded lands and rehabilitate them for grazing use; these lands are now managed by the BLM.

The distribution of historic sites on BLM land coincides primarily with the Bankhead-Jones lands, and are homestead related. Homestead sites consist mainly of foundations, depressions and artifact scatters primarily from the homesteading period of 1910 to 1925. Homestead sites are classified as homesteads or farmsteads, townsites, railroad sidings, rural schools and rural churches.

Other historic sites likely to be found on BLM land in the Judith and Phillips RAs are those related to gold mining in the Judith, Moccasin and Little Rocky Mountains. These sites consist of the remnants of mines, adits, tramways, kilns, cabins, dumps and equipment. The larger sites such as mills and towns (Maiden, Giltedge, Kendall, Zortman, Landusky) usually occur on private land.

There are approximately 150 historic sites recorded in the Judith RA, 40 in the Valley RA, and 170 in the Phillips RA. The variation in the number of sites primarily reflects the amount of inventory conducted.

RECREATION

BLM land provides a wide range of recreational opportunities from picnicking, sightseeing and watching wildlife to hunting and fishing. These opportunities meet a diversity of visitor preferences. Participation in specific recreational activities varies with the season of the year. Hunting dominates the scene in the fall with limited snowmobiling and cross-country skiing during the winter. Springtime activities include fishing, sightseeing and photography. Camping, picnicking, pleasure driving, sightseeing, fishing, hiking, boating, collecting and shooting prairie dogs dominate recreation during the summer months along with some dispersed ORV use. Overall, BLM land supports some type of recreational activity throughout the year, with the heaviest use occurring during the fall hunting seasons. BLM land received about 88,700 recreation visits in 1988. Of this use, the Valley RA provided 12,500 visits, the Phillips RA 35,400, and the Judith RA 40,800 (see Table 3.22). Recreation use on BLM land is expected to increase approximately 2% per year.

TABLE 3.22
RECREATION USE ON BLM LAND (VISITS)

Recreation Category	Resource Area			
	Judith	Valley	Phillips	Total
Hunting	16,800	8,900	11,400	37,100
Sightseeing, picnicking, & watching wildlife	5,100	200	9,400	14,700
Fishing	3,300	2,800	5,700	11,800
Pleasure driving	9,800	200	1,100	11,100
Camping	1,200	200	6,200	7,600
Hiking, horseback riding, & bicycling	1,900	0	1,000	2,900
Other	2,700	200	600	3,500
Total	40,800	12,500	35,400	88,700

Source: BLM, 1990

Twelve recreation management areas (RMA) comprise the planning area. Most are dispersed recreation oriented, with little or no intensive use or facilities present. These RMAs are Square Butte, Judith, Judith Mountains, Snowy Mountains, Judith River, Lewis and Clark National Historic Trail, Nez Perce Historic Trail, Little Rocky Mountains, Phillips, South Phillips, Valley and South Valley.

VISUAL RESOURCE MANAGEMENT

An inventory of the visual resources was completed for the Prairie Potholes Vegetation and Missouri Breaks Grazing EISs. This inventory evaluated the visual features of land, water surface, vegetation and structures which provided the subsequent delineation of scenic quality, visual sensitivity, visual zones and visual resource management (VRM) classes. Scenic quality, sensitivity to changes in the landscape and distance zones were factored together to determine the VRM classes. Additional VRM information is given in the VRM section of Management Common to All Alternatives in Chapter 2.

Most of the planning area has common prairie type scenery. Those areas with above average or outstanding scenery which should be noted here, include Square Butte, the Judith and South Moccasin Mountains, the Judith River Breaks and the Missouri Breaks.

OFF-ROAD VEHICLES

Off-road vehicle (ORV) use is primarily associated with other activities such as hunting, fishing and driving for pleasure. These activities account for 68% of the total visitor use in the planning area. The major types of vehicles used for off-road travel are the two-wheel or four-wheel drive pickup and the all terrain vehicle (ATV). The numerous unimproved roads and trails scattered throughout the planning area provide access for off-road travel. Most snowmobiling (approximately 800 visits annually) is done for the enjoyment derived from operating the machine and is considered dispersed recreation use. ORV use in a limited area, a concentrated time span or during the wrong conditions can cause social problems and resource damage. These problems include resource damage such as soil erosion on steep slopes, soil compaction and rutting from use during wet periods, destruction of vegetation and loss of ground cover as roads and trails are created and/or expanded.

Harassment of wildlife and a loss of scenic quality may occur due to additional roads and trails.

Social problems can also occur between hunters on foot or horseback and hunters using vehicles. Extensive use of motorized vehicles is causing some conflicts among the various user groups.

The highest concentration of ORV use (cross-country travel) occurs during the fall hunting season. Hunters use their vehicles and ATVs extensively to search for or retrieve game. Problems associated with ORV use are found throughout the planning area, especially in the southern part of the Valley RA and in northeastern Petroleum County and

northern Fergus County of the Judith RA. One intensive ORV use area is located near Glasgow in the Valley RA. No other intensive use sites have been identified.

WILDERNESS

There are currently no designated BLM wilderness areas within the planning area. Seven wilderness study areas (WSAs) have been studied as a result of the BLM's Intensive Wilderness Inventory. These WSAs are Burnt Lodge, Antelope Creek, Cow Creek, Bitter Creek, Woodhawk, Dog Creek South and Square Butte. Square Butte is discussed under ACECs. These seven WSAs contain 134,987 acres of which 90,067 were recommended as nonsuitable and 44,920 acres were recommended suitable for wilderness designation.

The Burnt Lodge WSA is located on the north side of Fort Peck Reservoir in the Phillips and Valley RAs. It contains 13,730 acres and is bounded on the north by Plum Creek Road, private and state lands; on the east and west by private lands; and on the south by Ball Creek Road, the CMR, private lands and state lands. All of this WSA was recommended as suitable for wilderness designation.

The Antelope Creek WSA is located on the north side of the Missouri River in the Phillips RA. It is contiguous on the south side to the CMR. The WSA contains 12,350 acres of BLM land and is bounded on the north by Fortress Butte, Highway Ridge Road, Power Plant Ferry Road, and private, state and public lands; on the west by the Power Plant Ferry Road; on the south by the Missouri River, CMR, and private lands; and on the east by the Antelope Ridge Road. Approximately 9,600 acres of this WSA were recommended as suitable for wilderness designation.

Half of the Cow Creek WSA, 17,050 acres, lies in the Phillips RA. The other half is located in the Havre RA which was included in the West HiLine RMP. It is bounded on the north by private, state, and other public lands; on the west by that portion of the WSA in the Havre RA; on the south by Cow Island Recreation Road, Power Plant Ferry Road, and private lands; and on the east by Cabin Coulee Road, Coyote Road, private lands, and state lands. Approximately 21,590 acres of this WSA were recommended as suitable for wilderness designation.

The Bitter Creek WSA is located in the Valley RA, approximately 25 miles northwest of Glasgow, and 18 miles south of the Canadian border. The WSA contains 59,660 acres of BLM land located in three roadless segments identified as Bitter Creek South, Bitter Creek West and Bitter Creek East.

The Woodhawk WSA, approximately 8,100 acres, is located on the south side of the Missouri River in the Judith RA. It is bounded on the north by Sunshine Spur Road and public

lands; on the west by Woodhawk Trail Road, state and public lands; on the south by Two Calf and DeMars Roads; and on the east by the Missouri River and private lands.

The Dog Creek South WSA consists of about 5,150 acres on the south side of the Missouri River in the Judith RA. The WSA is bounded by the Missouri River, other public lands and a county road. The WSA is fairly compact, about 5 miles long and 1 to 3 miles wide. Drainages of intermittent streams are steep and separated by narrow, barren ridges. The drainages to the north and west drop directly toward the PN Ranch at the mouth of Dog Creek and toward other ranches north of the river.

LANDS

BLM land ranges from very scattered tracts in Judith Basin and Chouteau Counties to well blocked lands in portions of the remaining counties. Concentrations of BLM land are located in northern Fergus, northern and eastern Petroleum, southern Phillips, and southern and northwestern Valley Counties. A significant amount of BLM land throughout the planning area are lands reacquired from private ownership via the Bankhead-Jones Farm Tenant Act.

Blocks of public land have been withdrawn from multiple-use management for various purposes such as national wildlife refuges, Native American reservations, Bureau of Reclamation (BR) lands, Corps of Engineers (COE) lands and powersites. Table 3.23 describes the withdrawing agency and size of withdrawals by resource area.

Rights-of-way (ROW) are issued for various utility and transportation purposes, communications sites, oil and gas pipelines and water related facilities such as reservoirs, dams, ditches, canals, dikes, wells and water pipelines. Table 3.24 identifies type, numbers, and acres of ROWs by resource area.

Few leases and permits are issued in the planning area. Permits and leases have been issued for agricultural purposes and recreation and public purposes. Table 3.25 identifies these permits and leases by type and acres for each resource area.

Land acquisitions and disposals are primarily accomplished by exchange. Five sales were completed within the planning area in the last 10 years; three at the D-Y Junction in Phillips County and two in Valley County at Hinsdale and Tiger Butte. Table 3.26 identifies acres of acquired and disposed lands by resource area.

TABLE 3.23
AGENCY AND SIZE OF WITHDRAWALS
BY RESOURCE AREA (ACRES)

Agency	Judith	Valley	Phillips	Total
BLM	15,581*	434	1,061	17,076
USFS	1,420	-	-	1,420
USFWS	144,592	421,790	249,091	815,473
USAF	92	-	-	92
COE	23,203	144,111	81,310	248,624
BR	-	2,150	32,219	34,369
BIA	-	-	114,057	114,057
STATE DEPT.	-	352	323	675
Total	184,888	568,837	478,061	1,231,786

*Includes Power Site classification and reservations totalling 13,195 acres.

Source: BLM, 1990.

TABLE 3.24
FEDERAL RIGHTS-OF-WAY
BY RESOURCE AREA (NO./ACRES)

Type	Judith No./Size	Valley No./Size	Phillips No./Size	Total
Powerlines	32/724	2/1,671	25/1,305	59/3,700
Telephone	17/641	8/221	11/1,283	36/2,145
Comm. Sites	10/4	2/1	17/45	29/50
O&G Pipe.	2/273	7/38	60/124	69/1,525
Mat. Sites	6/37	3/21	5/43	14/101
Roads & Highways	54/1,432	24/944	39/1,908	117/4,284
Railroads	8/69	2/272	4/315	14/356
Water Related	22/2,402	20/617	38/8741	80/11,760
Total	151/5,582	68/3,785	199/14,854	418/24,221

Source: BLM, 1990.

TABLE 3.25
FEDERAL LEASES & PERMITS
BY RESOURCE AREA (NO./ACRES)

Type	Judith No./Size	Valley No./Size	Phillips No./Size	Total
302 (b) Permit	5/40	2/11	2/34	9/85
302 (b) Lease	2/10	1/11	-	3/21
R & PP Lease	1/3	2/80	5/21	8/104
Total	8/53	5/142	7/55	20/210

Source: BLM, 1990.

TABLE 3.26
BLM ACQUISITION/DISPOSAL
BY RESOURCE AREA (NO./ACRES)

Type	Judith No./Size	Valley No./Size	Phillips No./Size	Total
Acquis.	7/3,786	4/6,860	6/9,987	17/20,633
Disposal	7/7,848	*6/7,083	*9/10,355	*21/10,355

*Includes exchanges and sales

Source: BLM, 1990.

TRANSPORTATION AND ACCESS

BLM maintains approximately 338 miles of roads annually; 117 miles in the Judith RA, 135 miles in the Phillips RA, and 86 miles in the Valley RA. A map of the existing transportation system can be examined in the Lewistown District Office. The information in this system includes maintained and unmaintained road status.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

ACECs are areas that may require special management to protect resource values. The Square Butte Outstanding Natural Area is currently the only designated emphasis area in the planning area. There are seven other areas identified as potential ACECs that meet the relevance and importance criteria. They are the Judith Mountains Scenic Area, Acid Shale-Pine Forest, Collar Gulch, Azure Cave, Big Bend of the Milk River, Prairie Dog Complex 1, and Prairie Dog Complex 2. Prairie Dog complexes 1 and 2 have been combined into one potential ACEC. Each of these areas has resource and/or human values that are unique within the planning area. These values will be discussed for each area. Designation and management prescriptions for ACECs only apply to public lands administered by BLM.

Judith Mountains Scenic Area

Significant scenic, wildlife and recreation values are found in an area that includes a portion of the Judith and South Moccasin Mountains that form the backdrop for the City of Lewistown. This backdrop is the key area that provides the scenic setting for the residents and travelers living in or passing through Lewistown. The Class "B" category is indicative of the excellent scenic quality rating for the area. This area is the dominant visual feature on the landscape and can be seen quite readily from the community of Lewistown and from area highways U.S. 191 and U.S. 87. This area is shown on Supplemental Color Map B at the conclusion of Chapter 2.

Sightseeing, driving for pleasure (scenic drives), hiking, mountain biking and hunting are all considered as main recreational activities in this area. Some off road vehicle use occurs mainly on unimproved roads and trails in the upper end of Limekiln Canyon in the Judith Mountains. There is a small picnic area located in the lower end of Limekiln Canyon. Legal public access to the South Moccasin Mountains is currently unavailable.

The BLM land in this area currently provides yearlong, medium to high value habitat for mule deer, white-tailed deer, merriam turkey, blue grouse, and ruffed grouse. Prairie falcons may nest in the cliffs of the Judith Mountains.

Livestock grazing rarely occurs on any of the public land within the proposed ACEC. Factors such as distance to water, steep slopes and thick timber all contribute to making this area mostly unsuitable for grazing.

The area is rated as having moderate occurrence potential for oil and gas. No leases on public lands have been issued in this scenic area nor have any wells been drilled in the past to explore for oil and gas prospects.

Small areas of the forest have been harvested for sawtimber, post and poles and fuelwood. There are 1,500 acres of productive forest land currently available for that type of product use.

The area has a high occurrence potential for locatable minerals, notably precious metals, and has a moderate development potential. One exploration project has been proposed and there are no active mines. It is anticipated that the area will continue to attract exploration projects and may, given the right conditions, see active mining in the future.

Acid Shale-Pine Forest

These unique areas have limited occurrence across the planning area and are characterized by dominantly slow growing ponderosa pine trees with almost bare shale beneath the trees and limited creeping juniper and grass understory between the trees. Small openings or parks produce grasses, forbs and shrubs. The plant community is unique to the acid shale landscapes. These areas have little value for livestock, except shade and shelter from storms or the hot summer sun yet many species of wildlife use these areas for food, shelter and reproduction. This area is shown on Supplemental Color Map C at the conclusion of Chapter 2.

These communities are for the most part, isolated and of limited range and extent. It appears they are only found in general areas of central and eastern Montana and comprise only a small fraction of the normal vegetative community. It appears some of the best examples of this unique plant association are found within the planning area in the eastern portion of the Judith Resource Area.

The acid shale forests have clayey soils that produce sparse vegetation; are very fragile; and are subject to water and wind erosion. Landscapes are gently rolling to very steep with much rill and gully activity.

The acid shale derived soil landscapes with characteristic unique vegetation are primarily in soil subgroup 3 (see Appendix D). The soils exhibit severe erosion potential and are vulnerable to changes such as increased grazing pressure, intense rains and rapid runoff. Sedimentary accumulations are from 5,000 to 8,000-feet deep. Geologic formations exposed at the surface are Colorado Group shales of marine origin (Ross, 1955) and the area has a moderate occurrence potential for oil and gas. Cretaceous sands are the primary target of gas exploration while mesozoic to paleozoic strata would be likely targets for oil exploration. The Cretaceous Cat Creek formation produces both gas and oil. There is also some oil production from deeper paleozoic Amsden formation at Cat Creek field.

The bedrock formation underlying the potential ACEC is the Cretaceous Colorado Group formations (Ross, 1955). This formation is composed of marine shales and does contain bentonite beds. Bentonite in this formation is not of a minable thickness.

Square Butte ONA

Square Butte is a well known regional and national landmark rising abruptly from the plains in southern Chouteau County near the junction of the Arrow Creek and Shonkin Sag valleys. It is highly scenic (Class A scenery) and rises some 1,500 vertical feet above the surrounding plains. This area is shown on Supplemental Color Map A at the conclusion of Chapter 2.

The butte is the remnant of a laccolith intruded into the Eagle sandstone and is composed entirely of igneous rocks. The lower portion of Square Butte is composed of dark colored igneous rock termed shonkinite. This rock erodes into cliffs, spires and crags that gradually recede as one proceeds upward.

Square Butte was designated an Outstanding Natural Area in the Little Belt Management Framework Plan of 1972 by Secretarial Order and then as a National Natural Landmark in 1980.

The area is made more unique and diverse by the opportunity to observe mountain goats, elk, mule deer, prairie falcons and a host of other wildlife. A successful introduction of goats, was made on Square Butte in 1941. Hunting seasons from 1957 to 1965 produced high hunter success. The population decreased to near zero, for unknown reasons after 1965. A reintroduction of seven goats was made in 1971. The current population varies from 35 to 50. In the late 1970s elk migrated from the Highwood Mountains to

Square Butte via Round Butte during the winter. In the 1980s these elk became yearlong residents with a population of approximately 50. Hikers may see elk, mountain goat and more common wildlife such as mule deer. This makes Square Butte a unique and significant recreational experience.

There are a number of prehistoric vision quest sites and other cultural resource sites on the summit and slopes of Square Butte. These cultural properties could be considered sacred by Indian peoples of the region.

The geology of this area has enhanced hydrocarbon potential due to the likelihood of stratigraphic traps and increasing porosity and permeability in the reservoir rock known to exist in the area. The ACEC is considered to have moderate potential for oil and gas resources.

The grazed portion at the base of Square Butte is in very good range condition. It is used during late fall, which allows the vegetation to grow the entire grazing season. Most of Square Butte is inaccessible to livestock; therefore 1,200 acres are not allocated to livestock grazing.

Collar Gulch

The westslope cutthroat trout, which inhabits Collar Gulch Creek, in the Judith Mountains has become increasingly rare in Montana due to a loss of habitat, loss of populations and genetic dilution. The westslope cutthroat trout is a Montana State species of special concern. The trout from Collar Gulch Creek were identified as pure westslope trout by the University of Montana genetics laboratory. According to R. Leary and F. Allendorf of the University of Montana, "most of the genetic variation in westslope cutthroat trout is contained between populations instead of within populations. Thus, each population represents a potentially valuable source of genetic variation. Because the westslope cutthroat trout in Collar Gulch Creek is a pure population, this population should be preserved." The trout inhabit about a mile of the creek partially on BLM and partially on private land. The main threats to this population are extreme drought and water pollution. Water quality samples collected in 1982 indicate high levels of lead, possibly from abandoned mining activities. This area is shown on Supplemental Color Map D at the conclusion of Chapter 2.

The Collar Gulch area is part of the historic Judith Mountains Mining District, established in the early 1880s. The potential ACEC contains scattered remains of historic mining activity such as adits, mineshafts, prospects, collapsed cabins and a millsite. Most of these remains probably date from the turn of the century.

The Tate-Poetter Cave is located on BLM land within the potential ACEC. Inventory data indicates this cave is an important bat hibernaculum for big-eared bats as well as

possessing significant cave resources such as spelothems. The FWS lists Townsend's big-eared bat as a Candidate 2 species.

The potential ACEC contains land with high and moderate hardrock mineral development potential. Since 1985, this drainage has been the target of exploration drilling by three different companies. Most of the recent activity is centered around the old Tail Holt Mine on the northeast side of Big Grassy Peak. The mine has a history of gold and silver production from the mid 1930s (Robertson, 1949). Present efforts are underway to reopen the old workings (BLM, 1990).

The rough terrain and close proximity to igneous plutonic rocks at the surface make the likelihood of exploratory oil and gas activity inside the area negligible.

The Collar Gulch drainage contains some productive forest land. Lodgepole pine and Douglas-fir are the most common commercial timber species. An intensive inventory is needed to determine the total number of productive forest acres in the Collar Gulch drainage.

The Collar Gulch and Collar Peak trails cross through the drainage and a jeep road penetrates the area from the south. There is a BLM campsite located on the southern boundary of the drainage.

Azure Cave

Azure cave is a limestone solution cavern located near Zortman, in the Little Rocky Mountains and is shown on Supplemental Color Map E at the conclusion of Chapter 2.

Azure cave has national significance because of its bat hibernaculum values. A colony of bats, nine species including little brown myotis (*Myotis lucifugus*) and least brown bat (*Myotis leibii*), occupies the cave during the winter. It is one of several hibernaculums in the Pacific Northwest and possibly the northern most in the United States (Chester et al., 1979).

Azure Cave is located at an altitude of 4,465 ft. The inner temperature is 41°F. The entrance is a 20-foot diameter opening on the south side of a steep canyon which leads to a 6-foot high passage into the top of the Big Room. A 70-foot drop is required to reach its floor. Big Room has two pits leading 40-feet downward to the lower level. Most of the lower level is horizontal and contains several rooms connected by small crawlways. One crawlway leads upward to a series of small rooms and dome pits. Many of the rooms are partially clay filled and most of the crawlways are plugged with red clay after a short distance. The cave reaches a depth of -220 feet and has 1,580 feet of mapped passage.

Azure Cave contains a significant amount of speleothems. The lower level has many stalactites and stalagmites, some of which are more than 6-feet long. Cave popcorn and flowstone decorate the walls of the cave. In one room, a very large cluster of helectites are found which are probably the best in Montana. Formations are still growing since the cave is active and wet.

The surface geology at the site of the cave is Mississippian limestone of the Mission Canyon or Lodgepole Formation. Based on the stratigraphy and the potential for both stratigraphic and structural traps the area is rated as having moderate occurrence potential for oil and gas.

The lands within the potential ACEC boundary have high and moderate development potential for gold and silver. Mineralization is located along north-south trending structures in the Paleozoic limestones. This formation also contains the cave resources that the existing withdrawal and the potential ACEC seek to protect. An ore body of 1.5 to 2 million tons has been identified north of the cave, part of which may lie inside the potential ACEC boundary.

The lands were transferred to the BLM from the National Forest System by Public Land Order No. 3938 on February 23, 1966. This order withdrew 139.41 acres around the entrance to the Azure cave for the protection of public recreation values and the significant cave values and resources it contains. This withdrawn area is within the potential ACEC boundary. The withdrawal removed the land from all forms of appropriation under the public land laws, including the mining laws (Title 30, U.S.C., Ch. 2) and reserved under the jurisdiction of the Secretary of Interior for the protection of public recreation values. The withdrawal does not alter the applicability of the public land laws governing the use of the land under lease, license, or permit, or governing the disposal of their mineral or vegetative resources other than under the mining laws.

Big Bend of the Milk River

The Big Bend area of the Milk River, northeast of Malta, has a high density of archaeological resources, many with rare or unique characteristics and scientific values. The cultural resources are between 1,000 and 2,000 years old and provide an exceptional opportunity for the study of relatively pristine sites encompassing a broad range of cultural functions established during a short period of prehistory. Sites include prehistoric bison kills in the form of traps, jumps and pounds with associated drivelines; prehistoric ceremonial and religious locales such as petroglyph boulders, medicine wheels, intaglios and burials; and complex habitation and resource exploitation manifestations characterized by large numbers of stone circles and cairns. This area is shown on Supplemental Color Map F at the conclusion of Chapter 2.

Two archaeological sites have been nominated to and are currently listed on the National Register of Historic Places

(NRHP) (24PH188 and 24PH189). Collectively termed the Beaucoup Site Complex, the two sites represent the nearly intact archaeological remains of Besant and Avonlea bison hunting cultures in primary archaeological context.

The Henry Smith Buffalo Jump Site (24PH794), an Avonlea bison kill site, is also within the Big Bend area, but is not currently listed on the NRHP. It is, however, considered eligible for listing. This site contains bison kill areas, drive lines, meat processing areas, petroglyph boulders and numerous concentrations of tipi rings and intaglios.

Although the Big Bend area has not been completely inventoried or evaluated the resources thus far located are nationally or regionally significant and represent a rare and irreplaceable cultural resource.

The Big Bend area is well known to local artifact collectors. These individuals have vandalized portions of the area (through unauthorized excavation) thus endangering the value of the entire area by destroying part of the resource. In addition to vandalism, the natural erosion process is degrading portions of archaeological sites throughout the Big Bend area. The archaeological resource in this area is extremely vulnerable to continued damage through intentional and casual vandalism.

All of the area is rated as high occurrence potential for oil and gas. This is due to the gas production from the Phillips and Bowdoin Formations which were discovered to have commercial quantities of gas in 1913. The discovery well is within the boundary of this area. There are three producing fields in this area; Ashfield, Bowdoin and Whitewater. The gas production is from shallow wells drilled into sandstone which is sandwiched between layers of impermeable marine shale. The producing zones are relatively thin and rarely have water associated with them. The overall structure of the area is a broad dome. Big Bend is located near the center of the dome where many of the most prolific gas producing wells are located.

The bedrock formation underlying the potential ACEC is the Cretaceous Claggett Formation (Ross, 1955). This formation does contain bentonite beds, but they are not of a minable thickness favorable for development.

Vegetation types in the area include grassland, grassland-sagebrush and woodland. The latter type occupies a narrow strip of land along the Milk River and in coulee bottoms. Tree and shrub species include chokecherry, common snowberry, creeping juniper, plains cottonwood, silver sage, big sage, rose, silver buffaloberry, willow, boxelder and a half shrub, fringed sagewort. Grass species include blue grama, green needlegrass, western wheatgrass, inland saltgrass, little bluestem, needleandthread, plains muhly, and prairie junegrass. There are no known endangered, sensitive, or threatened plant species in the area. There may be small patches of noxious plants (Canada thistle, leafy spurge, and knapweed) in the area.

Topography in the area varies from gentle rolling grasslands to level terraces along the Milk River, to river Breaks composed of exposed shales, clays, and sandstones.

Prairie Dog Complex

The Prairie Dog 7km Complex is in the southern portion of the Phillips RA and includes both the Complex 1 and Complex 2 ACEC nominations. This area contains a significant amount of high quality habitat for endangered black-footed ferret. Prairie dogs are essential as the primary preys species for the black-footed ferret. The 7kmComplex is based on the FWS habitat assumptions for ferret management: the area encompasses two or more prairie dog towns that are not more than 7 kilometers apart (Biggins et al, 1989). The area includes 12,346 acres of prairie dog towns on BLM land. Only BLM land would be part of the ACEC. Map 7 in the back of this document shows the location of the 7km Complex.

The black-footed ferret, thought to be nearly extinct was rediscovered at Meeteese, Wyoming late in 1981, and has become a nationally important species. It is now considered the rarest mammal in North America, with all known ferrets in captivity. A successful captive breeding program has allowed U.S. Fish and Wildlife Service (FWS) to plan reintroduction of the ferret in its natural environment. The existence of suitable habitat for this species is a critical national resource.

In 1986, the Montana Black-Footed Ferret Working Group proposed eight possible reintroduction sites (Clark, et al, 1987). In 1987, they narrowed the selection to the top four Montana sites which are all in or associated with the Phillips RA. The four sites were further evaluated after additional inventory data in 1988, and a paper by Clark and Minta (1989) selected this as the best possible site for reintroduction of the ferret in Montana.

Prairie dog towns have a unique assemblage of associated species that depend on these towns for habitat. Some of these species include the burrowing owl and the mountain plover another rare species which depends on the bare rocky soil found in prairie dog colonies for suitable nesting habitat. Prairie dog towns in this area also provide a recreational opportunity for a significant number of prairie dog shooters from the local area and across the country. The prairie dog towns in this complex are located within 61 livestock grazing allotments. Prairie dog expansion and use of vegetation and expansion can reduce available vegetation and hold the potential natural community at an early seral stage of development. The lands in this area have various values connected with fluid mineral potential. These three townships are rated as having high occurrence potential as a result of the favorable stratigraphy and recent drilling activity; T. 23 N., R. 28 E. and R. 29 E. and T. 27 N., R. 27 E. The rest of the area is rated as moderate potential.

ECONOMIC CONDITIONS

The planning area is a predominantly rural region with an economy based on production, extraction and use of natural resources. These resources include land used for crop and livestock production, oil and gas production, hardrock mineral production and water and wildlife that offer outdoor recreation opportunities. The industries dependent upon these resources are primarily export-based in that goods and services produced are exported from the planning area; providing an important source of new dollars to the area's economy. The following section describes the major industries in the planning area that could be affected by BLM management actions.

Agriculture

Livestock grazing first occurred in the Judith Basin during the late 1870s and expanded with the open-range boom until the mid-1880s. Ranchers during the open-range era owned only small portions of the vast areas of land under their control. With the drought and bad winter of 1886-1887, ranch management moved toward more local ownership, raising hay, developing water resources and grazing sheep. Homesteading in the early 1900s, increased farming with scattered operations along the irrigated river bottoms of the Missouri and Milk Rivers. There was an exodus of homesteaders throughout the 1920s and 1930s and many surviving agricultural operations began to diversify by raising both livestock and grain. New farming machines and methods, liberal land policies, and the advent of farming combined to form the area's social and economic base of ranching and farming, which has continued to modern times.

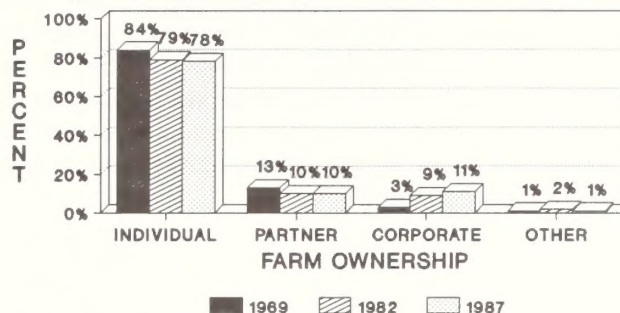
The majority of agricultural operations raise both livestock and grain. The major agricultural products are cattle, wheat, barley, oats and hay. Fergus, Judith Basin, Valley and Phillips Counties have an approximately even balance between livestock and crop receipts. A larger percentage of cash receipts from agriculture in Petroleum County come from livestock production than crop production. Chouteau County is primarily a grain producer. In 1987, Chouteau County ranked first in wheat production and second in barley production in Montana.

Ownership of farms and ranches is primarily by individuals and families (see Figures 3.3 and 3.4). The number of individual and family farms has declined over the years, while corporate ownership has increased. However, corporate ownership remains a small percent of the total farms in the planning area.

Figure 3.5 shows total farm employment between 1981 and 1988. There has been a general decline in farm employment during this period, which is expected to continue. The Montana Department of Labor and Industry projects a

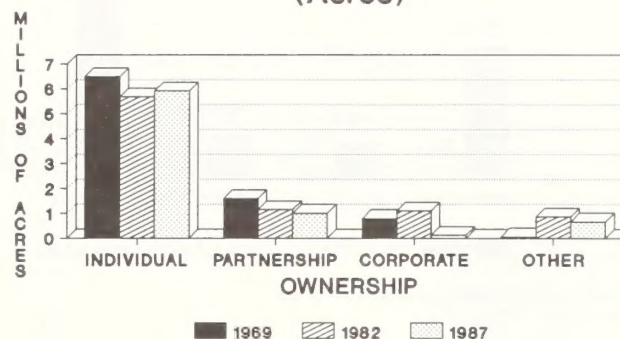
statewide decline of 3,000 jobs in agriculture by 1995, which is a 0.7% decline from 1988. This reflects the continued trend of consolidation and mechanization in the agricultural sector of the economy; a trend likely to continue as average ranch size increases.

FIGURE 3.3
Farm Ownership in the Planning Area
(Percent)



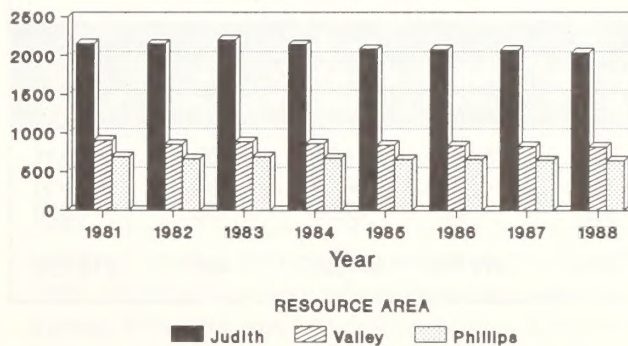
INCLUDES ALL OF CHOUTEAU COUNTY
SOURCE: US CENSUS OF AGRICULTURE 1987

FIGURE 3.4
Farm Ownership in the Planning Area
(Acres)



FIGURES FOR CORPORATE AND OTHER NOT
AVAILABLE FOR SOME COUNTIES (ESP 1987)
SOURCE: U.S. CENSUS OF AGRICULTURE 1987

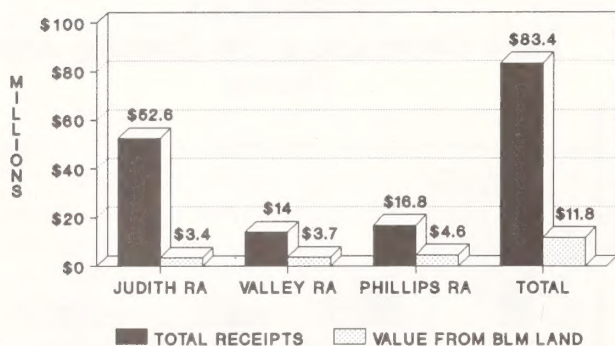
FIGURE 3.5
Total Farm Employment by Resource Area
(1981-1988)



SOURCE: MONTANA COUNTY DATA PACKAGE 1990

The BLM's relationship to the agricultural economy of the area involves livestock on BLM land. BLM forage contributes approximately 3% of the area's personal income and employment. BLM forage contributes an estimated \$11.8 million annually to livestock receipts in the planning area and averages 14% of the area's total livestock receipts. Figure 3.6 shows the portion of total livestock receipts attributable to BLM land. These livestock sales account for an estimated \$40.5 million in total economic activity (including direct and secondary spending), \$12.3 million in earnings and would generate approximately 483 jobs. Most of the economic activity and employment occurs in the agriculture and agricultural processing sectors of the economy along with the retail trade and service sectors. Table 3.27 shows livestock receipts, total economic activity, employment and earnings associated with livestock grazing on BLM land.

FIGURE 3.6
Regional Livestock Receipts (1986)



SOURCE: MONTANA AGRICULTURAL STATISTICS
1988 and BLM, 1990

TABLE 3.27
LIVESTOCK RECEIPTS, ECONOMIC
ACTIVITY, EMPLOYMENT AND EARNINGS
ASSOCIATED WITH LIVESTOCK GRAZING
ON BLM LAND (\$1,000)

Resource Area	Livestock Receipts	Total Economic Activity	Total Employment	Total Earnings
Judith	\$3,434	\$11,838	137	\$3,591
Valley	3,684	12,700	153	3,853
Phillips	4,637	15,987	193	4,850
Total	\$11,755	\$40,525	483	\$12,294

Source: BLM, 1990. Business activity, employment and earnings were estimated using coefficients from the Montana BLM Economic/Demographic Model.

Hardrock Minerals

Gold and silver mining in the planning area began in the 1880s. Gold was first discovered in the Judith Mountains in 1880 at Maiden Gulch, followed by other discoveries in 1881. Mining activity has occurred in the Judith, Moccasin, Little Rocky and the Little Belt Mountains.

Most mines in the area have operated intermittently since the early 1900s. Since the late 1970s, five gold and/or silver mines have been developed on sites of previous mining activity. This includes two mines in the Little Rocky Mountains, two in the Judith Mountains, and one in the North Moccasin Mountains. Bentonite is a mineral with previous high levels of mining activity in Valley and Phillips Counties, but is currently not being mined in the planning area. The immediate prospect for bentonite mining in the area is poor. If oil drilling activity were to increase the demand for bentonite would likely increase which could lead to renewed interest in bentonite mining in Phillips and Valley Counties.

The Landusky/Zortman gold and silver mines in the Little Rocky Mountains are operated by Zortman Mining Inc. opened in 1979, and employ approximately 200 workers. In the winter months, the work force drops to about 140. Most employees come from local communities including Malta, Landusky, Zortman and the Fort Belknap Indian Reservation. Residents of the Fort Belknap Indian Reservation comprise 16% to 18% of the Landusky/Zortman work force. Zortman Mining estimates that about 77% of its work force has been hired from the local area. The current projected life of these mines is through 1999, given present identified reserves.

The other three gold and silver mines in the area are in Fergus County. Blue Range Mining began underground development of the Gies Mine in the Judith Mountains in September, 1986. Current employment at the mine is 55, with an additional 43 employees at the Lewistown Mill. These two operations as well as other projects bring the local Blue Range work force to approximately 110, of which an estimated 80% have been hired from the local labor pool. Blue Range also received permit approval for the Virgin Gulch Mine in the Judith Mountains and is currently assessing whether or not to proceed with that project. If developed, the mine could employ 25 to 30 workers.

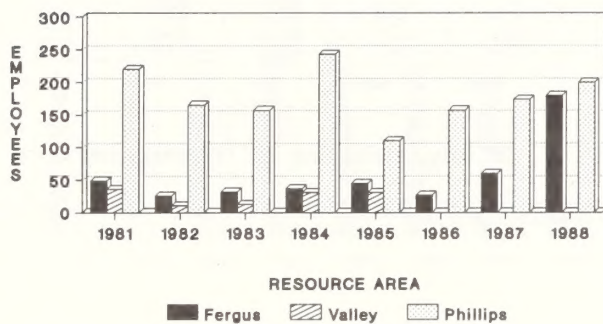
The Kendall mine in the North Moccasin Mountains was taken over by its present operator, Kendall Venture, in 1988. Current employment at the mine is 68 workers (about 66% hired locally). Kendall Venture has identified 3 years of reserves; however, the mining plan is being amended to cover an 8-year period.

The Spotted Horse mine in the Judith Mountains opened in the summer of 1986 and closed in 1990. The mine had a work force of 50 employees.

In addition to these mining operations, there are approximately 25 exploration projects in various stages of activity (see Appendix C) on BLM land as well as non-BLM land.

Figure 3.7 shows total employment in the minerals industry since 1981. Most of this employment is associated with the mining operations just described. The decline shown for Phillips County from 1984 to 1985 was due to reductions in bentonite employment. These losses were later offset by increases in employment at the Zortman/Landusky gold mines. Employment in Valley County was primarily associated with bentonite production. Mining employment figures for Valley County for 1986 through 1988 were unavailable. Mining is likely to continue with levels of mining and mine employment for gold and silver dependent on sustained high market prices.

FIGURE 3.7
Total Mining Employment in Fergus,
Phillips & Valley Counties (1981-1988)

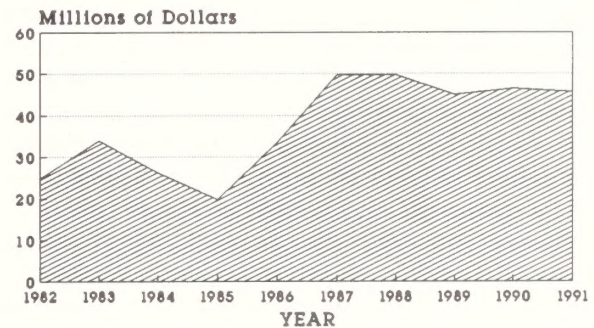


SOURCE: MONTANA COUNTY DATA PACKAGE (1990)

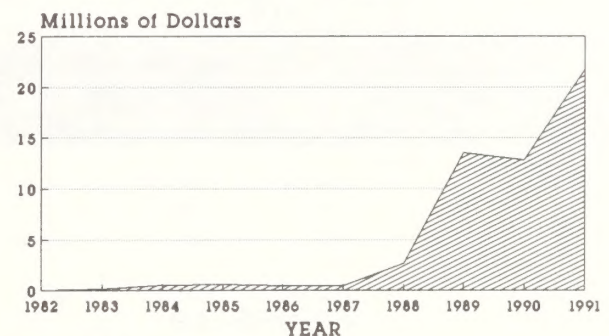
Figure 3.8 shows the gross value of metal mine production for both Phillips and Fergus Counties. Estimated expenditures for these operations were generally unavailable. The current annual payroll for mining operations is estimated to be \$10.2 million, not including fringe benefits. Assuming an estimated 65% of this total to be disposable income, mining employment would generate \$14 million in total economic activity primarily in retail trade and services, a total of 545 jobs (380 directly associated with mining and an additional 165 jobs resulting from secondary spending activity), and \$2.9 million in additional earnings. The level of direct and indirect employment generated by mining represents 3% of total employment in the planning area. The increases in total economic activity, employment and earnings in the regional economy include increases associated with exploration-related local expenditures for the estimated 25 exploration projects currently underway. It is estimated that an exploration project in this area would cost \$200,000; with \$40,000 spent locally. These figures do not include increased economic activity associated with nonlabor operating expenditures that may occur locally;

this omission may understate the actual economic impact of mineral development in the area. Most mining production occurs on nonfederal land in the planning area, with the exception of the Landusky/Zortman operations which are partially situated on BLM land; thus, only a portion of the economic activity estimated here would be attributable to BLM land.

FIGURE 3.8
Metal Mine Production
Gross Value - Phillips County



Gross Value - Fergus County



Source: MT Dept of Revenue

Oil and Gas

Nearly all of the federal mineral estate has been leased or is available for leasing.

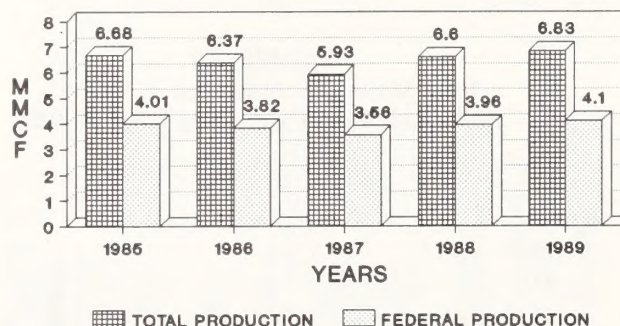
Oil production in the planning area is concentrated in two fields in Petroleum County: the Cat Creek field discovered in 1920, and the Rattlesnake Butte field, discovered in 1984. About 70% of the entire production from Cat Creek is federal; all other production is nonfederal. From 1985 to 1989, oil production from federal leases accounted for an average 30% of the area's total oil production. This percent has been increasing since 1985 as the production from the nonfederal Rattlesnake Butte field has been declining. Figure 3.9 shows oil production from all lands and from BLM land in the planning area.

Gas production in the area comes from fields in Fergus, Phillips and Valley Counties. The principal fields are Bowdoin (Phillips and Valley Counties), and Leroy (Fergus County). The first gas discovery in the area was the Bowdoin field in 1913. This field continues to be the largest gas producer in the area. From 1985 to 1989, gas production from federal leases accounted for about 60% of the area's total gas production. Figure 3.10 shows total gas production and gas production attributable to BLM land.

The total value of oil and gas production in the area is estimated to be \$12.4 million. Of this total, \$7.2 million would be attributable to production from federal leases (see Figure 3.11). From 1985 through 1989, production from federal leases averaged 55% of the total value of production. Production from federal leases account for an estimated \$13.4 million in total economic activity, \$1.8 million in earnings and generates approximately 89 jobs, including those jobs directly related to oil and gas activity, in the regional economy. This level of economic activity and employment includes drilling an average of 50 wells per year on federal leases, 40 of which would be development gas wells and the remainder exploratory. It is estimated that a development well in this area would cost \$60,000 and an exploratory well would cost \$290,000 to drill, 20% of which would be spent locally. These figures represent less than 1% of the area's personal income and total employment. Most of the economic activity and employment occurs in the petroleum and natural gas extraction, construction and transportation sectors of the economy, along with the retail trade and service sectors. Employment directly related to the oil and gas industry is included in Figure 3.7. Annual employment in Petroleum County was unavailable for confidentiality reasons.

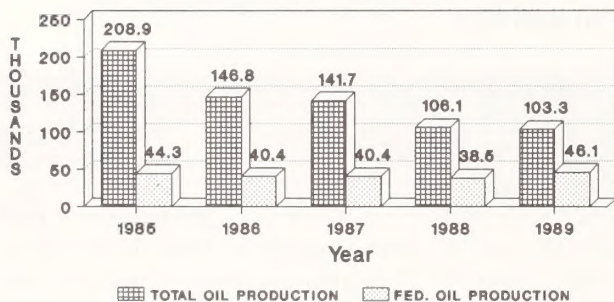
The outlook for exploration and development of oil and gas will depend on both domestic and world market conditions. Producing oil fields are in the declining stages of development, but favorable market conditions may spur new exploration activity. Exploration and development for gas has been relatively stable and should remain so for the foreseeable future. However, favorable market conditions could spur a large exploration or development program throughout the planning area.

FIGURE 3.10
Natural Gas Production in the
Planning Area 1985-1989 (MMCF)



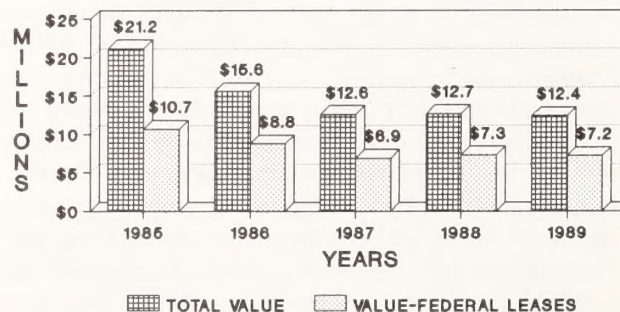
SOURCE: OIL & GAS ANNUAL REVIEW
MMCF-MILLION CUBIC FEET

FIGURE 3.9
Oil Production in the Planning Area
1985-1989 (Barrels)



INCLUDES CAT CREEK IN GARFIELD COUNTY
SOURCE: MT OIL & GAS ANNUAL REVIEW

FIGURE 3.11
Value of Oil & Gas Production 1985-1989
(Current \$)

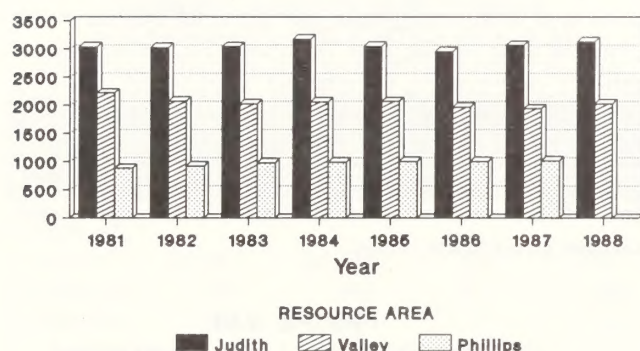


SOURCES: HISTORICAL ENERGY STATISTICS
AND MONTANA OIL & GAS REVIEWS

Tourism and Recreation

Tourism is closely associated with several sectors of the regional economy, most notably the trade and services sectors. These sectors provide substantial employment in each of the counties in the planning area. Included in the services sector are such industries as legal, personal, health, social, and business services, as well as hotels and lodging. Retail trade includes such businesses as eating and drinking establishments, clothing, automobiles and general merchandise. Wholesale trade, which includes both durable goods and nondurable goods, is more important in the area trade centers of Lewistown, Malta and Glasgow. Jobs and income in these sectors depend on the health not only of the tourism industry and those resources that draw visitors to the area, but other regional industries as well, such as agriculture, mining, and timber. Figure 3.12 shows total employment in the trade and services sectors from 1981 to 1988.

FIGURE 3.12
Total Employment in Trade & Services
(1981-1988)



* SOME SECTOR DATA NOT AVAILABLE
SOURCE: MT COUNTY DATA PACKAGE (1990)

Visitors attracted to the area by recreation opportunities provided both by public and private lands spend money on goods and services such as food, lodging, meals, transportation, clothing and outfitter services. These expenditures are an important source of income and can help offset declines in the trade and services sectors created by fluctuations in the region's other major industries, agriculture and mining.

The State of Montana has divided the state into six "tourism countries" for promotional purposes. Two of those countries, the Charlie Russell Country and the Missouri River Country, incorporate 21 counties, including the six-county planning area. Nonresident travel to the two tourism countries containing the planning area was estimated to have contributed \$98 million dollars in direct expenditures in the trade and services sectors during the 12-month period from April 1988 through March 1989. These expenditures are estimated to result in \$177 million in total economic activity

including secondary spending; \$47 million in additional earnings; and 3,500 jobs throughout the 21-county area (Yuan, et al., 1989). Because nonresident travel data was unavailable at the county level, an estimate of nonresident travel expenditures for the planning area could not be made.

BLM land in the planning area provides a considerable amount of recreational opportunities for the public, such as hunting, fishing, camping and sightseeing. Direct expenditures associated with recreation on BLM land are estimated to be \$4.9 million annually. These expenditures represent about 5% of the total nonresident travel expenditures for the Charlie Russell and Missouri River tourism countries. As this money circulates through the economy, an estimated \$9 million in total economic activity will result with an additional \$2.7 million in earnings and the equivalent of 113 jobs, primarily in the retail trade and service sectors. This level of employment comprises less than 1% of total employment in the planning area, but represents 2% of the trade and services sectors employment. Table 3.28 shows the expenditures, total economic activity, employment and earnings associated with recreation on BLM land within the planning area.

TABLE 3.28
EXPENDITURES, BUSINESS ACTIVITY,
EMPLOYMENT AND EARNINGS
ASSOCIATED WITH RECREATION
ON BLM LAND (\$1,000).

Resource Area	Direct Expenditures	Total Economic Activity	Total Employment	Total Earnings
Judith	\$1,920	\$3,535	45	\$1,075
Valley	905	1,667	21	507
Phillips	2,058	3,789	47	1,152
Total	\$4,883	\$8,991	113	\$2,734

Source: BLM, 1990. Business activity, employment and earning were estimated using coefficients from the Montana BLM Economic/Demographic Model.

In addition to economic activity associated with recreation-related expenditures, recreation provides benefits above those dollar values actually expended. These benefits are termed net willingness to pay, and provide a measure of the resource value people would have been willing to pay over and above actual expenditures. Net willingness to pay exists not only for recreation, but for other goods and services as well. However, estimates are not available for commodities in the other sectors described in this section.

The net willingness to pay for recreation on BLM land in the planning area is estimated to be \$3.5 million. Table 3.29 shows total economic benefit of recreation on BLM land in the planning area. Total economic benefit, estimated to be

\$12.5 million, includes economic activity associated with recreational opportunities and the net willingness to pay for that level of recreation.

TABLE 3.29
TOTAL ECONOMIC BENEFIT
OF RECREATION ON BLM LAND
WITHIN THE PLANNING AREA (\$1,000)

Resource Area	Total Economic Activity+	Net Willingness to Pay	Total Economic =Benefit
Judith	\$3,535	\$1,325	\$4,860
Valley	1,667	852	2,519
Phillips	3,789	1,361	5,150
Total	\$8,991	\$3,538	\$12,529

Source: BLM, 1990

Tourism is expected to continue to grow in importance in the regional economy as well as throughout the state. The outlook for the tourism industry is dependent on the health of the economy overall and on the region's ability to attract more visitors under increasingly-competitive conditions. More broadly speaking, the trade and services sectors, which the tourism industry feeds into, are expected to continue to provide stable levels of employment and personal income, with Lewistown, Glasgow and Malta serving as the major trade centers. But the trade and services sectors, in turn, depend on the economic vitality of the region's other major industries such as agriculture, mining and tourism.

Forest Products

The forest products industry in the planning area is relatively small. This industry is a source of outside income to the area with some timber processed locally at sawmills in Lewistown, Judith Gap, Roundup, Grass Range, Lodgepole, Hobson, Utica and Garneill and subsequently exported. However, most timber is processed at mills outside the planning area. In 1988, an estimated 17.7 million board feet (MMBF) were harvested from the six counties in the planning area. Most of this harvest comes from private land with some supply from U.S. Forest Service and BLM land.

BLM's productive forest land furnishes an annual cut of about 650,000 board feet on a sustained yield basis, but the actual harvest level may vary from year to year. Most of the BLM timber harvested in the planning area comes from Fergus County in the Judith RA, with the remainder harvested

from the Phillips RA. In 1988, timber harvest attributable to BLM land totaled 300,000 board feet, less than 2% of the total timber harvest of the area.

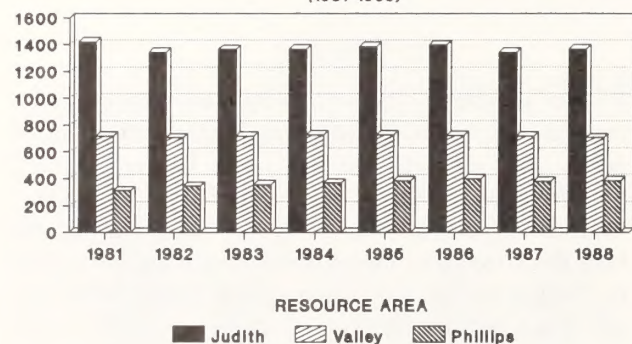
The value of timber products harvested in the planning area is estimated to be \$3.8 million. This would generate \$7.4 million in total regional economic activity, 142 jobs, and \$1.6 million in additional earnings. The employment generated by the forest products industry represents about 1% of total employment in the planning area. Only a small portion of this economic activity, less than 2%, would be attributable to BLM land.

The value of BLM timber to local mills could increase if the general supply of available timber in the area decreases. Cutbacks in Forest Service timber harvest in the area could create a demand for larger BLM harvest levels to maintain the present wood products industry in the planning area.

Government

The government has provided a significant and stable portion of total employment and personal income in the planning area for the past 10 years. Excluding federal military employment, government employment currently comprises about 16% of total employment. Figure 3.13 shows federal civilian, state, and local government employment in the planning area from 1981 through 1988. In 1988, there was a total of 2,460 people employed in the civilian government sector.

FIGURE 3.13
Federal, State and Local Government
Employment in the Planning Area
(1981-1988)



* EXCLUDING FEDERAL MILITARY
SOURCE: MT COUNTY DATA PACKAGE (1990)

BLM currently employs approximately 83 workers in three locations in the planning area: the Lewistown District Office, including the Judith RA; the Valley RA in Glasgow; and the Phillips RA in Malta. This level of employment comprises a relatively small portion, about 3%, of the total civilian government labor force in the planning area.

Direct expenditures by governmental units triggers secondary spending activity as described for the other major industries discussed in this section. Direct expenditures by BLM in the planning area are estimated to total \$3.1 million annually. Included in these expenditures are salaries, building lease and maintenance, vehicle fuel and maintenance, contracting for local items, utilities, nonfire aircraft use, communication site rental and local purchases. These expenditures are estimated to account for \$5.7 million in total economic activity, \$1 million in earnings, and the equivalent of 152 jobs (including BLM employment) in the regional economy. Most of this economic activity would occur in the trade and services sectors. Table 3.30 summarizes these impacts.

TABLE 3.30 ECONOMIC ACTIVITY, EMPLOYMENT, AND EARNINGS ASSOCIATED WITH BLM EXPENDITURES IN THE PLANNING AREA (\$1,000)				
District/ Resource Area	Direct Expenditures	Total Economic Activity	Total Employment*	Total Earnings
Lewistown District*	\$2,267	\$4,174	51	\$702
Phillips RA	491	904	11	194
Valley RA	328	604	7	130
Total	\$3,086	\$5,682	69	\$1,026

*Total Employment does not include BLM employment. Including BLM, employment totals 152.

*Lewistown District Office includes the Judith Resource Area

Source: BLM, 1990. Business activity, employment and earnings were estimated using coefficients from the Montana BLM Economic/Demographic Model.

Fiscal Conditions

Revenue to the state, county, and local governments comes from a variety of sources, including transfers from federal and state government, property taxes, severance taxes, income taxes and a variety of fuel and license taxes. Generally, property taxes, severance taxes and federal transfer payments are the categories of revenue most likely to be affected by management actions in this RMP.

The federal government collects rents on nonproducing oil and gas leases situated on federal land and collects royalties on producing leases. Half of these payments are returned to the state and are used to help fund the school foundation program which provides funds for each public school district in the state. In fiscal year 1990, these rents and royalties totaled \$2 million for oil and gas activities, half of which (\$1 million) was returned to the state.

The federal government also makes payments in lieu of taxes (PILT) to counties that contain federal land. These payments, which are based on county population and federal acreage, are designed to compensate for the loss of property taxes that counties would earn if the land were in private ownership. In fiscal year 1990, PILT payments to the counties in the planning area was \$1,048,637 (see Table 3.31).

TABLE 3.31
PAYMENT IN LIEU OF TAXES, STATE
EQUALIZATION PAYMENTS, AND TAXABLE
VALUATION FOR THE PLANNING AREA

County	Fiscal Year 1990 PILT	Fiscal Year 1989 SEP	Fiscal Year 1990 Taxable Valuation
Chouteau	\$112,775	\$78,084	\$24,799,050
Fergus	344,478	0	20,698,105
Judith Basin	107,803	17,134	8,785,812
Petroleum	30,000	0	1,748,015
Phillips	138,660	0	19,533,004
Valley	314,921	5,877	26,269,360
Total	\$1,048,637	\$101,095	\$101,833,346

PILT = Payments in Lieu of Taxes

SEP = State Equalization Payments

Phillips County Taxable Valuation is for 1991

Source: Division of Finance, BLM 1990

Department of State Lands, unpublished, 1990

Montana Department of Revenue Biennial Report
1986-1988

Phillips County Tax Assessor, unpublished, 1991

State Equalization Payments are paid by the state to counties when over 6% of the land area is state owned. Chouteau, Judith Basin, and Valley Counties receive these payments. In fiscal year 1989, these payments totaled \$101,095 (see Table 3.31).

The state collects a variety of other taxes, virtually all of which are deposited into the state's general fund and subsequently allocated to governmental programs at the state, county and local levels, although the bulk of the revenues fund programs at the state level.

Property taxes are levied primarily by counties on both real and personal property. This includes a gross-proceeds tax on metal-mine production (e.g. gold and silver), a net-proceeds tax on new production of oil and gas and a net-proceeds tax on nonmetal-mine production (e.g. bentonite). In addition, the 1989 Legislature enacted HB28 which removed the net and gross valuation of oil and gas from the property tax base. Lost property taxes were replaced with flat tax gross proceeds and local government severance taxes. These taxes are the primary source of funding for local government and schools.

In all counties in the planning area taxable valuation of agricultural land, livestock production and farm machinery constituted a significant portion of the total taxable valuation; Petroleum 77%, Chouteau 67%, Fergus 44%, Judith Basin 44%, Phillips 35%, and Valley 27%. In Phillips County, hardrock mining (including gross proceeds) constituted a significant 20% of taxable valuation. Valley County's most significant source of taxable valuation came from utilities, comprising 41% of that county's total valuation. Fiscal year 1990 taxable valuation for all counties in the planning area appears in Table 3.31 (figures reported for Phillips County are fiscal year 1991).

Severance taxes are levied by the state on nonrenewable natural resources such as oil, gas, metal, and nonmetal production. Severance and license taxes levied by the state that would affect resources in the planning area include the Resource Indemnity Tax, Metalliferous Mines License Tax, Micaceous Mineral Mines License Tax, Oil and Gas Producers Privilege and License Tax, the Oil and Natural Gas Severance Tax. Most of the revenue from these sources accrues to state government, although a portion of the Metalliferous Mines License Tax is allocated to county governments.

Demographics

The population in 1988 was approximately 35,000 for the six-county planning area (see Table 3.32). The average population density was 1.6 persons per square mile, less than one-third of Montana's overall population density of 5.5 (U.S. Bureau of the Census). Sixteen incorporated communities are located in the planning area.

In 1988, the incorporated communities ranged in size from Lewistown (6,400), Glasgow (3,410), and Malta (2,480), to Winifred, which had a population of 140. The area's three largest communities contained approximately 35% of the planning area's total population. Overall, approximately 52% of the total population lived in incorporated communities.

**TABLE 3.32
POPULATION 1940-1988
COUNTIES AND COMMUNITIES
IN THE PLANNING AREA**

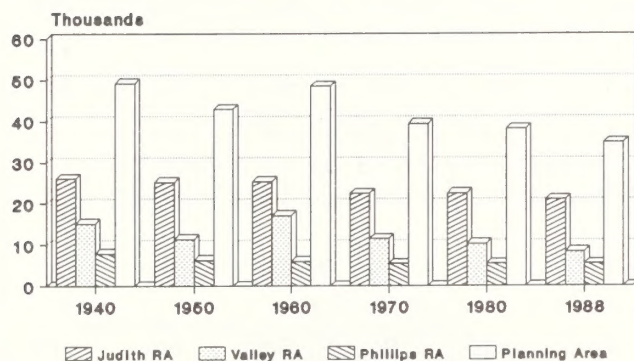
	1940	1950	1960	1970	1980	1988
Judith Resource Area						
<i>Fergus County</i>						
Lewistown*	—	—	7,400	6,440	7,100	6,400
Moore	—	—	210	220	230	190
Winifred	—	—	220	190	160	140
Grass Range	—	—	220	180	140	150
Denton	—	—	410	390	360	350
Other	—	—	5,560	5,190	7,990	4,870
Subtotal	14,040	14,020	14,020	12,610	13,080	12,100
<i>Judith Basin County</i>						
Stanford*	—	—	600	500	600	490
Hobson	—	—	200	190	260	290
Other	—	—	2,290	1,980	1,790	1,720
Subtotal	3,660	3,200	3,090	2,670	2,650	2,500
<i>Petroleum County</i>						
Winnett*	—	—	360	270	200	200
Other	—	—	530	410	460	400
Subtotal	1,080	1,030	890	680	660	600
<i>Chouteau County</i>						
Geraldine	—	—	360	370	300	250
Other	—	—	6,990	6,100	5,790	5,550
Subtotal	7,320	6,970	7,350	6,470	6,090	5,800
Total	26,100	25,220	25,350	22,430	22,480	21,000
Valley Resource Area						
<i>Valley County</i>						
Glasgow*	—	—	6,400	4,700	4,460	3,410
Opheim	—	—	460	310	210	170
Nashua	—	—	800	510	500	550
Fort Peck	—	—	—	—	—	250
Other	—	—	9,440	3,880	5,130	4,020
Total	15,200	11,400	17,100	11,500	10,300	8,400
Phillips Resource Area						
<i>Phillips County</i>						
Malta*	—	—	2,240	2,200	2,370	2,480
Saco	—	—	490	360	250	250
Dodson	—	—	310	200	160	180
Other	—	—	2,960	2,640	2,620	2,490
Total	7,900	6,300	6,000	5,400	5,400	5,400
JVP TOTAL	49,200	42,920	48,450	39,330	38,180	34,800

Note: * indicates community is a county seat.

Source: U.S. Bureau of the Census

The 1988 population reflects a pattern of steady decline since 1940, when approximately 49,200 people lived in the planning area. Between 1940 and 1950 the population declined by 13% to 42,900, then increased 13% to a level of 48,450 in 1960. The population declined approximately 3% between 1970 and 1980 and between 1980 and 1988 there was a decrease of approximately 9%. Approximately 29% fewer people lived in the planning area in 1988 than in 1940 (see Table 3.32 and Figure 3.14).

FIGURE 3.14
Population In The Planning and
Resource Areas



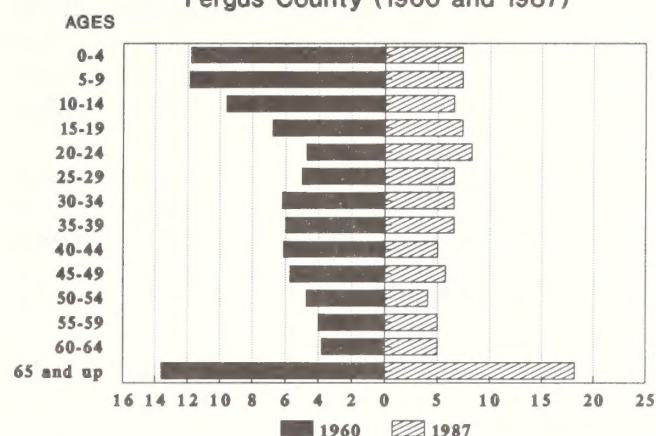
SOURCE: US CENSUS BUREAU

The population declines are due to people migrating from rather than into the area. Net migration rates between 1960 and 1987 indicate a population in each county except between the years 1970 and 1975 in Fergus, Judith Basin and Valley Counties. Because these are rural agricultural counties with minimal economic diversity, the net migration rates are more severe than for all of Montana.

Between 1970 and 1987, the loss of population in Valley County was greater than the loss for all other counties in the planning area combined. The changes in Valley County's population were mainly due to the opening (1958) and closing (beginning in 1968) of the Glasgow Air Force Base.

Age distribution for each county in the planning area for 1960, 1970, 1980, and 1987 indicate an aging population with decreasing numbers of people in the 0 through 19 age group, increases in the 20 through 39 age group, and large increases in the 65 plus age group. Patterns of age distribution are consistent for each county in the planning area and reflect state and national trends. Figure 3.15 represents the pattern of age distribution for Fergus County and is consistent with the patterns for the other counties in the planning area.

FIGURE 3.15
Population by Age
Fergus County (1960 and 1987)



SOURCE: US CENSUS BUREAU

The population in the planning area is predominately white, with a significant number of Native Americans living in Phillips and Valley Counties. A portion of the Fort Belknap Indian Reservation is located in Phillips County and a portion of the Fort Peck Indian Reservation is located in Valley County. The 1980 Native American population on Fort Belknap, which is mostly located in Blaine County, was 1,700.

In 1980, 378 Native Americans resided in Phillips County. This figure comprised 7% of Phillips County's population and represented a 40% increase from 1970. In Valley County, the 1980 Native American population was 927 or 9% of the total, up from 8% in 1970. Both Native American and white populations declined between 1970 and 1980 in Valley County, with the white population declining at a higher rate than the Native American population (U.S. Bureau of the Census).

The population of the planning area is expected to continue to decrease through the year 2005, due to outmigration primarily among young adults who leave for advanced education, military service and employment. Projections for Montana based on data for the period 1975 to 1986 indicate outmigration will reduce the state's population to 792,000 in 2005, a decline of 4% from the 1985 peak of 825,000. If the population of the planning area declines at a rate similar to the rest of Montana, total population in 2005 is expected to be between 33,000 and 34,000.

Other demographic trends anticipated for the nation, state and planning area in the next 15 years include an increasing population in the United States, migration from farm and ranch to towns due to farmer and rancher retirement and farm and ranch consolidation, an aging population, and increases in the number of households and in the disposable income/buying power per household in the state and nation.

TABLE 3.33
OBJECTIVE INDICATORS OF SOCIAL WELL-BEING

	Chouteau	Fergus	Judith Basin	Petroleum	Phillips	Valley	Montana	United States
Physicians per 100,000 population 1980 ⁽¹⁾	32.8	114.7	0	0	37.3	78.0	127.1	173.7
Education levels, percent population completing at least 4 yr high school 1980 ⁽¹⁾	76.7	72.5	74.4	71.9	66.0	72.8	74.4	66.5
Percent housing lacking some or all plumbing facilities 1980 ⁽¹⁾	1.6	2.3	5.6	3.3	1.6	2.3	5.6	3.3
Per capita personal income 1986 ⁽²⁾	\$14,604	\$11,953	\$11,555	\$10,263	\$11,278	\$12,881	\$12,385	NA
Median family income 1979 ⁽¹⁾	\$17,139	\$15,297	\$14,717	\$12,277	\$13,724	\$17,270	\$18,413	\$19,917
Percent families below the poverty level 1979 ⁽¹⁾	8.6	14.2	14.6	25.6	15.0	11.4	9.2	9.6
Percent population in the working age group 18-64 yrs old 1980 ⁽¹⁾	57.6	55.5	55.3	58.1	55.3	56.5	59.8	60.6
Percent net migration 1980-1987 ⁽³⁾	-8.7	-8.9	-10.0	-10.7	-4.1	-21.1	-3.7	NA
Unemployment rate 1986 ⁽²⁾	6.6	8.8	5.3	4.5	7.5	8.0	8.1	NA
Crime rate per 100,000 population (major crimes) 1987 ⁽⁴⁾	1646.9	3174.4	856.4	NA	3478.1	2590.3	4270.8	NA
Marital termination rate (per 1000 population) 1986 ⁽⁵⁾	2.2	4.7	1.9	3.3	2.2	5.0	5.3	NA

NA = Not Available

Sources:

(1) County and City Data Book

(2) MT Economic Conditions 1988, MT Dept of Commerce, forthcoming

(3) Census and Economic Information Center, MT Dept of Commerce, 1988

(4) Crime in MT 1987 Annual Report, Criminal Justice Data Center of the MT Board of Crime Control August 1988

(5) Montana Vital Statistics 1986, MT Dept of Health and Environmental Sciences

SOCIAL CONDITIONS

Social Well-Being

Indicators of social well-being (see Table 3.33) present a mixed picture, suggesting the planning area possesses the positive and negative factors associated with rural areas. The counties are lacking some basic services; the number of physicians per 100,000 population is much lower than for the state and nation, education levels are lower in some counties than for the state; and the proportion of housing lacking some or all plumbing (a housing quality indicator) is higher in several of the counties than for the state. Per capita income (1986) and median family income (1980) are lower than for the state. The percent of families below the poverty level (1980) was higher in all of the counties, except Chouteau, than for the state and nation. Also, unemployment has been a historic problem resulting in a loss of people in the working age group (18 to 64 years).

Outmigration from all planning area counties continues to occur at a rate much higher than for the state as a whole.

Positive factors include the area's remoteness and sparse population which result in freedom from many urban problems such as high crime rates and overcrowding. In addition, divorce and crime rates are low, recreational opportunities are plentiful and family ranch operations remain predominant.

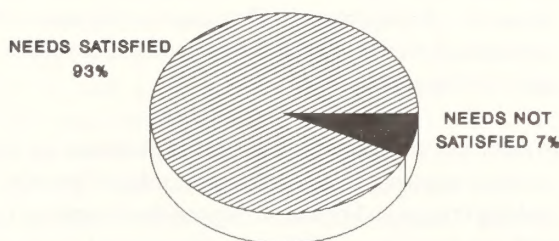
Many aspects of social well-being and local attitudes are not captured in reports on changes in employment or personal income. Often these qualities are referred to as intangibles, or subjective indicators of social well-being because they are difficult to quantify. However these qualities are part of what makes life pleasurable and worth living. These intangibles can include feeling a part of your community, close relationships with people, access to outdoor recreational opportunities, having a sense that you and people in your community have control over the

decisions that affect your future, feeling confident that your children will get a fair start in life, etc.

Discussions held with planning area residents indicate these people feel their important lifestyle needs are being met (see Figure 3.16). However, these discussions also showed an ambivalence about the future, including health of the economy and level of employment, maintenance of present lifestyles, and concern about impacts to the environment.

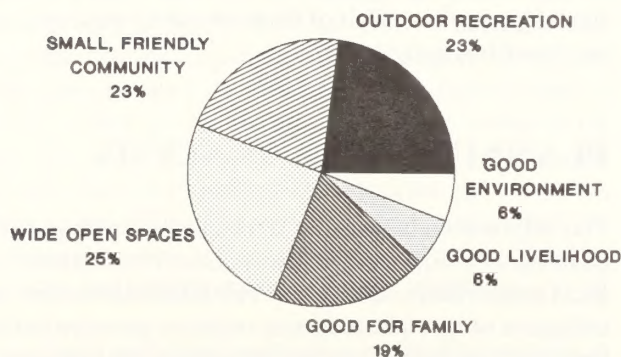
Objective indicators of social well-being for the Fort Belknap Indian Reservation, which is adjacent to the planning area and directly north of the Little Rocky Mountains, indicate much higher levels of poverty and unemployment than for the planning area. There is concern on the reservation about mining in the Little Rocky Mountains. This is further discussed in the issue specific attitude information.

FIGURE 3.16
Perceptions of Lifestyle Needs
Planning Area Discussion Participants



NEEDS SATISFIED/NEEDS UNSATISFIED

SOURCE: BLM, 1989 (N=67)



SOURCE: BLM, 1989 (N=67)
LIFESTYLE NEEDS IDENTIFIED BY DISCUSSION
PARTICIPANTS AND SATISFIED BY THE AREA

Social Trends

These recreation related social trends are anticipated for the nation, state and the planning area: there will be a long-term increase in recreation demands on BLM land; the types of recreation desired will change due to the aging population; state and national populations will have increased leisure time; and tourism, vacationing and travel will grow nationally.

Trends related to providing services will include changes in the types of public and private services required with aging populations in the planning area, state and nation, and decreases in the tax base to support planning area and state public services.

A trend that could affect attitudes is the increasing education levels in the state and nation. In addition, increasing concern about the effects of resource related activities on the environment and on recreational opportunities will be become more evident among the general public, the media and regional and national politicians.

Regional Attitudes

This information is based on two surveys conducted among Montana residents: Natural Resource Development in Montana, Susan Selig Wallwork and Maxine Johnson, Bureau of Business and Economic Research, University of Montana, 1986; and Montana Futures: 1984 Update, Department of Sociology, University of Montana, 1984. The former study surveyed a random sample of 624 adult Montanans in November of 1985. The latter study surveyed a random sample of 400 adult Montanans in early, 1984.

The following information is summarized from Natural Resource Development in Montana. Nearly two-thirds of the respondents indicated natural resource development, in general, to be very essential to the state's future economic health. Nearly half indicated the pace of development was about right; slightly over one-third indicated the pace or level of development was too slow or too low. The primary advantages or benefits associated with natural resource development are jobs and income, help to state and local economy, tax revenues and providing needed products. The primary costs or disadvantages associated with natural resource development include environmental impacts, pollution, poor reclamation, population growth and boomtown and boom and bust cycles. About three-fifths of the respondents saw little or no conflict between natural resource development and outdoor recreation while one-quarter felt the two activities did conflict. Respondents were also asked what activities should be allowed on government lands other than areas adjacent to national parks and wilderness areas. Most respondents felt these activities should be allowed on government lands: timber cutting (85%), oil and gas extraction (83%), coal mining

(78%), and hardrock mining (79%). Other respondents felt these activities should be prohibited on government lands; timber cutting (11%), oil and gas extraction (12%), coal mining (17%), and hardrock mining (15%).

This survey also asked specific questions about oil and gas leasing and development. About half of the respondents felt oil and gas development to be very essential to the state's future economic health, with this number being higher in the eastern part of the state. Another one-third of the respondents indicated oil and gas development was fairly essential. About two-fifths felt the pace of development was about right, with nearly an equal number indicating the pace of development was too slow. Nearly half of the respondents indicated the state of the industry was static, one-fifth said it was thriving and successful and another fifth said it was unhealthy and declining. Respondents from the eastern part of the state were more likely to say the industry was unhealthy and declining. Nearly three-fourths of the respondents said they had a favorable impression of the industry. About two-fifths of the respondents rated industry as excellent or pretty good in its behavior as a responsible citizen of the state. Another two-fifths rated the industry as only fair or poor in its behavior as a responsible state citizen.

The survey also asked specific questions about hardrock mining. A little less than one-third of the respondents felt hardrock mining to be very essential to the state's future economic health, with this number being higher in the western part of the state. Another two-fifths indicated hardrock mining was fairly essential. About one-third felt the pace of development was about right, with nearly an equal number indicating the pace of development was too slow. One-third of the respondents indicated the state of the industry was static, while two-fifths indicated it was unhealthy and declining. Respondents from the western part of the state were more likely to say the industry was unhealthy and declining. About half of the respondents said they had a favorable impression of the industry; about one-fourth indicated they had an unfavorable impression. One-fourth of the respondents rated industry as excellent or pretty good in its behavior as a responsible citizen of the state. Two-fifths rated industry as only fair or poor in its behavior as a responsible state citizen.

The Montana Futures: Update 1984 survey is directed at attitudes toward state government. However, some of these issues also have implications for federal land management. When asked to rank 40 issues as important for state government, the following issues with implications for the RMP emerged; economic development (rated as issue number 5), the environment (issue number 6), government spending (7), utilities-energy (8.5), water issues (10), agriculture-ranching (11), government inefficiency (12), mining (20), land issues (23), tourism (31.5) and game animals (38).

A large majority of the respondents believe the state government should do more to regulate energy exploration (67%), enforce environmental regulations (68%) and manage natural resources (79%). A much smaller proportion of Montanans believe state government should do less to regulate energy exploration (26%), enforce environmental regulations (24%), and manage natural resources (14%). Nearly four-fifths of the respondents believe federal lands within Montana should be subject to state environmental and leasing laws with only 13% disagreeing. Two-thirds of Montanans believe environmental pollution is a significant problem in the state, while the other one-third believes it is not a significant problem. Over half of the respondents believe the state needs more laws to protect the environment; two-fifths believe more laws are not needed.

Respondents were asked if they believed that most industries could be trusted to follow good environmental practices without state regulation. Four-fifths said no while less than one-fifth said yes.

This survey also asked questions about land use. Almost all of the respondents indicated development can take place without degrading the environment. Nearly three-fifths believe protecting the environment is more important than economic development. Montanans split over whether economic benefits should determine land use; 50% agree and 46% disagree.

In indicating priorities for water use in Montana, agricultural use ranks highest with nearly three-fourths of the respondents ranking it high and nearly all respondents ranking it either high or moderate. Other highly ranked uses include residential use (53% high priority), fish and wildlife (53% high priority), industrial use (22% high priority), and recreation (22% high priority). The lowest priority ranking was water for mining, with only 14% rating mining as a high priority use.

In asking about access, one question asked if public access across private lands to public lands for recreational purposes should be required. Half of the respondents indicated yes and two-fifths indicated no.

PLANNING AREA ANALYSIS

This information is based on 70 discussions with over 85 planning area residents. The discussions were conducted by BLM employees in April, 1989. This information offers an indication of how planning area residents perceive public lands and the issues. Discussion participants represent a cross section of people from Valley, Phillips, Fergus and Petroleum Counties, with various occupations and time spent in the planning area.

The occupations of discussion participants were business (25 discussion participants), insurance and banking (2),

newspaper (2), military (1), homemakers (8), local government (6), professional services (6), other services (5), education (6), students (7), agriculture (15), outfitters (3), and elected officials (6). Some discussion participants identified themselves with more than one occupation (e.g. agriculture and outfitting) and 11 of the participants were BLM livestock grazing permittees.

About 40% of the discussion participants lived in the area all their life while about 18% had lived in the area less than 5 years. Another 13% had lived in the area 6 to 10 years, 16% 10 to 25 years and 15% 25 years or more, but not all their life. About 30% of the discussion participants were in the 36 to 45 age group, with 35% 35 or under and 35% 46 or older.

Lewistown and the Judith Resource Area

Judith RA discussion participants describe Lewistown as a stable, off-the-beaten-path, low key community with a large proportion of retired citizens. Recreation (hunting and fishing) is very important to many residents. People feel the area is a good place to live, and most indicate their personal lifestyle needs are met. These needs include access to outdoor recreation activities, easy access to the surrounding area, good environment, a small and friendly community, and good schools and activities for kids. Discussion participants varied in their observations of the changes that have occurred in Lewistown in the past 10 years. Some people indicated the area was pretty stable or had not changed much with comments such as: “retirees stabilize the community, stable except for agriculture which is hurting, lost a few businesses but others came in, and not much change socially or politically.” Other people indicated the Lewistown economy has improved recently due to agriculture and mining activities and a few residents indicated Lewistown was going downhill.

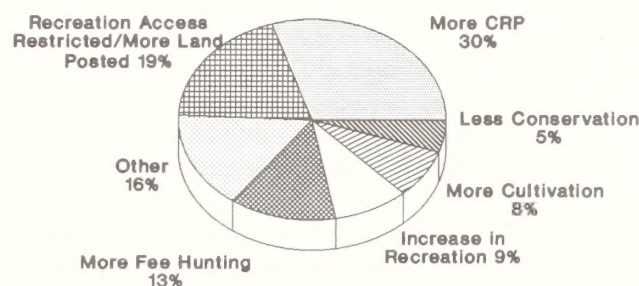
Expectations of future community trends (next 10 to 20 years) varied from “a lot of potential for growth” to “no growth anticipated.” The “no growth” scenario was suggested by the majority of the discussion participants with some people indicating Lewistown does not need to grow. Other people indicated there was potential for growth in Lewistown and cited the Midgetman Missile System, agriculture, relocation by retirees and tourism as offering possibilities for growth. A few people expect the community to slowly decline due to the poor transportation network and local business not being competitive.

Economics and related problems were cited by residents as the major problems facing Lewistown. Specific concerns include the poor economy and lack of jobs; the young leaving the area due to lack of opportunities; the aging population with a high requirement for special services; problems with funding public services such as schools, roads and water; possible loss of the air service; and keeping

businesses here in the community. Problems cited by other communities in the area such as Winnett, Moore and Winifred include subdivisions, consolidation of schools and funding for services such as schools.

Changes in land use in the past decade perceived by discussion participants included more private land being posted and more cultivation. The majority of people indicated that more private land was being posted; some added that the closed land was leased for hunting (fee hunting). Other comments included “more rural subdivisions or play farms, less concern for conservation practices such as erosion and weed control, ORVs are causing erosion, mining has increased, Conservation Reserve Program (CRP) has changed some land use, and out-of-staters buy land and close it to the public” (see Figure 3.17).

FIGURE 3.17
Perception of Land Use Changes:1979-1989
Planning Area Discussion Participants



SOURCE: BLM, 1989 (n=77)

Glasgow and the Valley Resource Area

Valley County discussion participants describe Glasgow as a small, rural, agricultural community with a declining population and a history of boom and bust development. The boom and bust development refers to the building of Fort Peck in the 1930s and the development and subsequent closure of the Glasgow Air Force Base in the 1950s and 1960s. Residents felt that Glasgow and Valley County is a good place to live and most indicated that their personal lifestyle needs are being met. These personal lifestyle needs include good people, a small close-knit community, an uncrowded area with natural beauty, a good place to raise children, plentiful outdoor recreation opportunities and wide open spaces.

Discussion participants indicated the major change in Glasgow in the past decade was the continued outmigration of people due to the poor economy. In addition to this initial assessment, the following comments were made by some people: “many people in the 25 to 40 year old age group have left, accelerating the population aging trend; farms

and ranches are getting bigger, resulting in the loss of the farm population; Glasgow businesses are having a difficult time because of the population loss; and schools and other services are stretched to the limit because of the declining tax dollars.”

Expectations of future community trends (next 10 to 20 years) varied from anticipating “slow growth” to “will hold own” to “will continue to decline.” The latter two possibilities were cited by the majority of the people. Many people indicated Glasgow’s future depends upon what happens with the Glasgow Air Force Base (i.e., the success of the St. Marie Retirement Village, or other possibilities) and/or agriculture.

Economic problems were cited by all the discussion participants as the major problem facing the community. Other related comments include: “a lack of jobs which causes the young people and sometimes whole families to move; low wages which make it difficult to support a family; declining tax revenues with an infrastructure designed for a larger community; and the loss in the variety of businesses because of the dwindling population and shopping elsewhere by those who remain.” A few people mentioned the drought and that the community needs the agricultural base to survive.

Changes in land use that have occurred in the past decade include land placed in the CRP and access for recreation becoming more restricted. Most discussion participants identified land being placed in CRP as the major land use change and further commented that there is a weed problem connected with CRP. CRP has hurt implement dealers as well as other businesses because those who put their land in the program do not remain in the community. Comments regarding CRP generally described it in a negative light. Comments referring to changes in access were made by many people. These comments included: “landowners are dissatisfied with hunters, more landowners are restricting access for hunting to their private land, fee hunting is being discussed and landowners may turn to fee hunting in the future for economic reasons, and access to public land across private land is restricted” (see Figure 3.17).

Malta and the Phillips Resource Area

Phillips County discussion participants describe Malta as a small, friendly, rural, cooperative community with an agricultural base. Although Malta is a progressive community with a good business climate, young people find it difficult to stay here because of the lack of employment opportunities. Malta has an increasing number of elderly people because people retire here due to the medical facilities and housing. All of the discussion participants felt Malta and Phillips County is a good place to live and that their personal lifestyle needs are met. Qualities people like about

Malta are the small schools where **students** get lots of attention, the progressive community, the size, the recreation such as hunting and fishing, the ruralness of the area, friendliness, easy-going lifestyle, good people, community orientation and safety. Drawbacks to Malta include its isolation, lack of commercial transportation, limited goods and services and economic problems such as low incomes.

The changes in Malta in the past 10 years, as described by discussion participants, were varied. The most common comments were: “lost the bentonite plant, mining development in Zortman started and helped the community, the population is aging, and people left, primarily the young.” Comments related to community economics/businesses were: “the economy has tightened/is more depressed, business has decreased, and debts are higher.”

Expectations of future community trends (next 10 to 20 years) varied with the most common comment being “does not see a lot of change.” Other comments included: “agriculture will stabilize, this will help the whole economy; mining will continue, this will pick up the slack; and tourism and hunting will increase.” Several people offered conditional comments such as: “the stability of the community depends on what happens to agriculture and light industry; and the future of Malta is tied to mining, when the mines close people will leave and the tax base and schools will suffer.”

General economic problems were the most common comment about major problems facing the community. Additional comments made by those who cited economic problems included: “economy fluctuates with agriculture; economy is not diversified, too dependent upon mining; and no jobs.” Comments offered by other people were economic related: “the population is aging because young people are leaving, high taxes, tax base too small, and problems with funding for schools and other services.”

The major theme **that** emerged in describing changes in land use that have occurred in the last decade was land being put in CRP. In regard to CRP, people also indicated: “CRP has paid off a lot of debts, financially, it is silly to farm; and CRP has brought money into Malta but eventually it will hurt businesses.” Some people felt positive overall regarding CRP while others felt negative. Other land use changes identified include: “problems with access/land posted, increasing numbers of out-of-town hunters/sportsmen, a lot of range was broken up, and increased recreation use of public and private lands” (see Figure 3.17).

Planning Area Attitudes About BLM Land Management and Issues

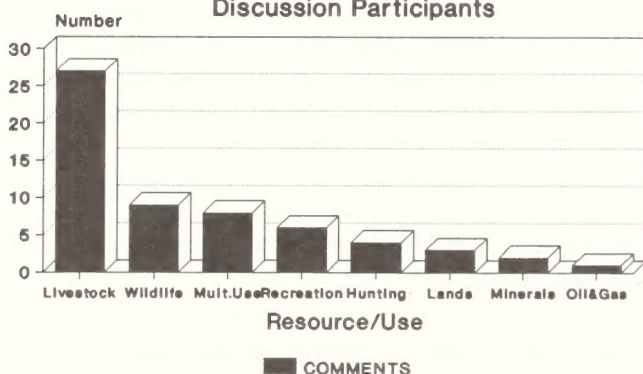
Most participants felt BLM decisions affect the area and many **saw** the effects in economic terms.

Just under half of the discussion participants had a problem identifying BLM land on the ground; this was more of a problem in the Phillips and Valley RAs than in the Judith RA. This occurred because BLM land is similar to adjoining lands, the broken land pattern makes it difficult to tell where you are and areas are not well marked. This inability to identify land on the ground contributes to access problems. Discussion participants suggested a variety of ways to enhance the ability of the public to identify land on the ground, including better maps and signing, advertise that BLM has maps and clearly define public roads.

Nearly all the discussion participants indicated there would be increases in demand for BLM land and resources in the future. Recreation was identified as the activity where demand would increase the most.

People see the following as the most important uses of BLM land: livestock grazing (27 discussion participants), wildlife (9), multiple use (8), recreation (6), hunting (4), the lands (3), mining/minerals (2) and oil and gas (1) (see Figure 3.18).

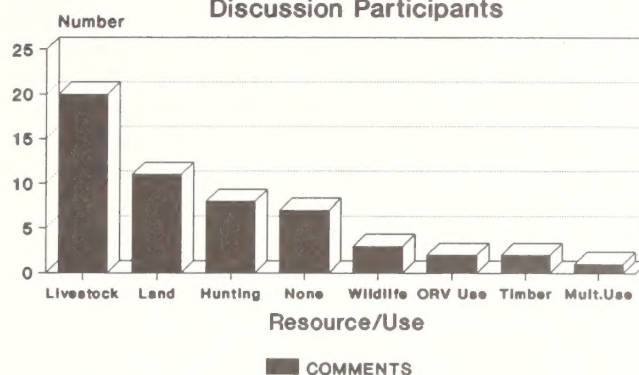
FIGURE 3.18
Important Uses/Resources on BLM Land
As Perceived by Planning Area
Discussion Participants



SOURCE: BLM, 1989 (N=54)

People see the following as the most threatened use on public lands: grazing because of outside pressure, there is a misconception that the land is overgrazed, or pressure from recreationists (20 discussion participants), the land itself from overgrazing and erosion (11), access for hunting (8), no threats (7), wildlife habitat (3), timber because of poor management (2), ORV use (2), and multiple use (1) (see Figure 3.19).

FIGURE 3.19
Threatened Uses/Resources on BLM Land
As Perceived by Planning Area
Discussion Participants



SOURCE: BLM INTERVIEWS, 1989; (N=54)

Discussion participants felt BLM should consider the following information during its planning effort: local concern about more rules and regulations and change coming from the outside; need to increase on-the-ground presence if recreation opportunities are enhanced; need to resolve access problems between landowners and recreationists; and need to take advantage of opportunities for improved public relations and education.

Land Acquisition and Disposal

Forty-four discussion participants discussed land acquisition and disposal. Nearly half indicated BLM land should be blocked up to make lands more manageable and policeable, and/or to block up scenic lands for recreation and wildlife habitat. About one-quarter of the people indicated recreation lands should be retained and/or acquired, and that acquisition and disposal should be used to acquire access. Some felt small tracts should be sold or disposed of and a few people said lands should be left in private ownership. Comments on the exchange process itself included: "actions should benefit the public, simplify things for permittees who wish to acquire tracts, drive a hard bargain and consider lessees when selling grazing lands."

Access to BLM Land

Fifty-seven discussion participants discussed access. The majority of those who identified themselves as hunters felt that there was an access problem, while only one-third of the non-hunters felt access was a problem. Permittees identified access as a problem, although from their point of view, it was the problems involved with allowing access across their private land. Access appears to primarily affect hunting access for people who are not long time residents of

the area. This seems particularly strong for the Valley and Judith RAs. In Phillips County fewer hunters who had been in the area less than 20 years thought access was a problem and a larger percentage of non-hunters and long time residents identified access as a problem.

Some of the hunters felt that landowners were blocking access to public land for personal gain through fee hunting. Many people had a concern that fee hunting would increase in the future. The effect of fee hunting on many of these hunters would include closing private land to hunting and the increasing pressure on public land. There is a fear that access to public land will be reduced by landowners who lease their private land for fee hunting. Landowner views of fee hunting did not emerge in great detail, although some people did indicate the economic attraction of fee hunting on their property.

Discussion participants also indicated that BLM should direct attention toward educating the public. This could help resolve access problems between landowners and recreationists. Access was one area where BLM could help solve local problems by acting as an intermediary between recreationists and landowners.

Another point which was brought up in the Judith RA was the importance of hunting and fishing to people who seek employment in this area.

Off-Road Vehicle Designations

Fifty-one discussion participants discussed ORV use. The majority of those who commented were hunters. There does not appear to be much actual ORV use (motorcycles, ATVs, etc.). Most off-road use is associated with hunting and involves driving ridges looking for game or retrieving big game. About half of the people felt ORV use was a problem, the other half felt things were all right. People saw the need for ORV limitations. These limitations could include closing areas or designating areas for a particular use.

Some people felt ORV use is not currently a problem, but could become one if future use increases. Problems identified with ORV use include erosion, too much use of ATVs and motorcycles in campgrounds, and extensive use causing some private landowners to close land. Problems during the hunting season include some hunters disturb others, and people drive everywhere and harass or scare wildlife.

Oil and Gas Leasing and Development

Thirty-eight discussion participants discussed this issue. Most of these people favored development with some indicating guidelines should be followed and environmental damage controlled. Some people indicated the economic

implications to local communities were important and positive. A few people indicated regulations and inspections should be strictly enforced or made stricter while others indicated paperwork and rules associated with leasing are burdensome.

Hardrock Mining

Forty-three discussion participants discussed this issue. Not surprisingly, fewer comments were received from the Valley RA, where no mining is currently occurring, than from the Phillips and Judith RAs, where mining is currently occurring. The vast majority were positive toward mineral exploration and development giving such comments as: "development should be encouraged and development is economically important." A few people were opposed to mining because of environmental problems. Comments on the company currently operating at Zortman in the Little Rocky Mountains were positive.

Many people offered specific mining suggestions such as: "control to protect and reclaim land." Participants identified these concerns with mining: "use of mining claims for other purposes such as real estate, toxic waste and heavy metal run-off, visual effects and the environment in general."

Members of the Fort Belknap Indian Reservation are concerned about mining in the Little Rocky Mountains. Their concerns include potential impacts to water quality and quantity; reservation resident's health; Native American cultural, religious and social practices; wildlife including fisheries; and air quality. Potential escape of cyanide solution from mine sites is a particular concern.

Riparian and Wetland Management of Watersheds

Thirty-four discussion participants discussed this issue. The majority of comments were management suggestions. These included: "manage and enhance for watershed and wildlife, do not hurt agriculture, build reservoirs and holding areas, need more management to get the maximum use of the water, and need more wetlands." One point of view expressed repeatedly was that any change in grazing privileges (i.e. change in season of use or fencing riparian areas) is seen as only the beginning in the eventual removal of livestock from public lands, and that the impetus for this will come from outside the planning area.

Elk and Bighorn Sheep Habitat Management

Forty-nine discussion participants discussed this issue. The most frequently mentioned comment on the current situation

was that elk are causing problems; many of these residents were from Valley County. The majority of the people favored species reintroduction or expansion as a general concept or for a specific species such as elk, sheep, bald eagle or falcon. Comments negative to expansion and reintroduction were usually species specific, such as “no to bald eagles, elk or wolves.” Other management suggestions included: “work closely with local communities, and do not get too upset if reintroduced species accidentally get trapped or killed.” Several people expressed the point of view that it is not species reintroduction that is opposed, but all the rules and regulations that accompany reintroduction.

Prairie Dog and Black-Footed Ferret Management

Forty-six discussion participants discussed prairie dogs and black-footed ferrets. Over half of these people discussed control or management of prairie dog towns with suggestions ranging from total eradication to the use of ferrets and other predators to help control prairie dog populations. Prairie dog shooting, either as a control measure or for recreation, was discussed by over one-third of the people. Almost all of these people favored the idea. In the planning area, reintroduction of the black-footed ferret was favored by about one-quarter of the discussion participants and opposed by about the same proportion.

Of the ranchers with a BLM grazing permit, all favored control of prairie dogs. Many of these permittees had a prairie dog town on their private land or on BLM land adjacent to their private land.

Attitudes differed by resource area. People in Valley and Phillips RAs were generally opposed to reintroduction of the black-footed ferret, while the Judith RA had many more people in favor of reintroduction. Those who discussed prairie dogs in the Judith RA were a much smaller proportion of the whole than in the Phillips and Valley RAs. Those people residing in Phillips and Valley counties tend to be more strongly in favor of prairie dog control or eradication and recreational shooting.

Additional discussions were held in July through October, 1990, with ranchers who have private and/or permitted BLM grazing land included in the proposed black-footed ferret reintroduction area. The most frequently mentioned concerns were: “control of prairie dogs, loss of AUMs and the cost of the project.” Many discussion participants were skeptical about the government and government projects and wanted to see guarantees or legal documents before agreeing to the reintroduction of the ferret. An associated

concern was restrictions being placed on ranch operations if the project is implemented. Some ranchers indicated they were not so much concerned about the ferrets themselves, but about restrictions they feel would accompany ferret reintroduction. It was felt these restrictions could affect the value of private land near the reintroduction area. Concern about the effects to the ranching way of life from outside interference such as environmental groups was also evident.

Areas With Special Management Concerns

Thirty-six discussion participants discussed areas of critical environmental concern. Nearly half indicated ACEC designation, in general, was a good idea for: “sensitive areas, winter grazing for elk, to protect the land and to protect the land for future generations.” Some approved of designation with the following reservations: “do not acquire new land, designate only for unusual lands, consider local input, and emphasize the homestead era rather than prehistoric sites.” Azure Cave was the specific area receiving the most discussion. Most wanted access into the cave. Comments about the effects of special designations included: “these designations can have an adverse effect on traditional economics and sometimes when an area is designated for special use it becomes so crowded that no one can enjoy it.”

SUMMARY

This planning area is rural, sparsely populated, with an agricultural based lifestyle. Residents have indicated a willingness to forego amenities found in many more urban environments, such as more available medical care, higher income, higher employment levels and better housing quality, to pursue what they consider a high quality of life. The area experiences a low crime rate, few social problems and plentiful and noncrowded outdoor recreation opportunities.

While regional and planning area residents feel this way of life is desirable, they observe with real concern the rate at which the population is outmigrating from the planning area and the lack of opportunity for jobs. These values and concerns lead to conflicts in resource issues. Generally, residents are in favor of economic growth through resource development or other industry because it would provide employment for them or their children and would promote overall economic well-being. On the other hand, they wish to continue to enjoy the outdoor recreational opportunities associated with sparse population and a largely pristine environment.

INTRODUCTION

This chapter describes the environmental, economic and social consequences of implementing the alternatives presented in Chapter 2. The impacts were identified and evaluated by an interdisciplinary team of resource specialists and are presented here for 12 environmental elements by issue and alternative (refer to Chapter 3 for a detailed description of each element). These elements are:

1. Oil and Gas
2. Hardrock Minerals
3. Air and Water Quality
4. Soils and Vegetation
5. Livestock Grazing Management
6. Wildlife
7. Forestry
8. Cultural Resources
9. Recreation
10. Visual Resources
11. Economic Conditions
12. Social Conditions

This chapter quantifies the specific impacts, where possible, and discusses where the impact would occur. The significance of the impact, including magnitude, duration and incidence are discussed where possible. National, regional or local importance is also discussed in some instances. The impact discussions relate only to BLM management actions.

It's difficult to assign a single definition of the significance of an impact to all environmental elements. The location, size and duration of an impact, as well as the amount of public opportunity, social well-being and economic change are some of the variables that can determine the significance of an impact. Yet not all of these variables apply equally to all environmental elements. The degrees of impact are discussed within the analysis.

Chapter 4 is presented in seven sections; Analysis Assumptions and Guidelines, Impacts from Management Common to All Alternatives, Impacts by Alternative, Summary of Cumulative Effects Analysis, Unavoidable Adverse Impacts, Short-Term Use Versus Long-Term Productivity and Irreversible and Irretrievable Commitment of Resources. The environmental impacts of the alternatives are summarized in Table S.2 in the Summary at the beginning of this document.

ANALYSIS ASSUMPTIONS AND GUIDELINES

The assumptions and guidelines used for analyzing the impacts of each alternative are listed below by general assumptions and environmental element. Environmental elements with no specific analysis assumptions and guidelines are not discussed.

General

The assessment of impacts assumes that regulations and policies would be observed and completed.

Approximately 161,000 to 166,000 BLM acres have been identified for disposal. This disposal base provides the potential for acquiring approximately 115,000 acres of other land, based on previous land exchange ratios. This difference reflects the differing values of the lands involved. The environmental impacts of disposing of all 161,000 to 166,000 acres will be analyzed.

Hardrock Minerals and Oil and Gas

The reasonably foreseeable development scenarios (RFDs) for oil and gas and hardrock minerals, contained in Appendices B and C, are the basis for assessing cumulative impacts from oil and gas leasing and development and hardrock exploration and mining. The RFDs discuss the general development process for extracting these resources and project levels of anticipated activity.

Soil and Vegetation

Approximately 60% of the stream riparian areas are in a late seral or potential natural community ecological status and 40% are in early to mid seral. Most of the stream miles (72%) are intermittent rather than perennial streams.

Using livestock grazing management practices to improve riparian areas has been the subject of much research in recent years. Grazing Management in Riparian Areas (Kinch, USDI-BLM, 1989) is an excellent summary of this research and BLM and U.S. Forest Service (FS) riparian management. The projected impacts are based on this reference document and experience with successful BLM riparian grazing methods in the planning area.

Livestock Grazing Management

Based on previous land exchanges in the planning area, 41% of the BLM land disposed of is now farmed. This percentage is used in the analysis to estimate the amount of grazing land that could be converted to small grain production. It is also assumed that conservation practices would be applied in compliance with Soil Conservation Service (SCS) conservation plans.

It's assumed construction costs for range improvements would be shared by BLM and the permittee; 75% BLM and 25% permittee.

Wildlife

A draft biological plan, developed by the U. S. Fish and Wildlife Service (FWS) in cooperation with the Montana Department of Fish, Wildlife and Parks (MDFWP), Charles M. Russell National Wildlife Refuge (CMR) and BLM, addressed prairie dog habitat associated with black-footed ferret reintroduction. The main provisions of this plan provided that; prairie dogs be managed in a complex for black-footed ferret reintroduction (7km Complex), prairie dog towns would be managed at the 1988 acreage and distribution, and that there would be no restrictions to current land uses in the area. This biological plan was used as a framework for assessing the impacts of each alternative.

The duck production figures given in this resource management plan (RMP) are based on the assumptions that the planning area receives normal annual precipitation; is developed for waterfowl production at three reservoirs per section; and that each reservoir averages 3-surface acres in size. The total surface acres of reservoirs was then multiplied by nine ducks per surface acre when under management and one duck per surface acre without management (Gjersing, 1971 and Munding, 1975).

The goose production figures are based on the assumption that every water source would have a goose nesting structure. The total number of nesting structures was multiplied by 70%, which is the average nesting structure occupancy rate, then multiplied by four, which is the average number of goslings produced per nest (McCarthy, 1973).

Forestry

It's assumed the average annual allowable cut would be 20 cubic feet per acre on acquired productive forest land.

Recreation

Recreation use is estimated to average one visit for every 31 acres of BLM land and that estimate would also apply to

acquired land. Recreation use would increase by an average of one visit for every 31 acres as BLM gains access to lands with no legal public access. In those areas where BLM now has limited public access, recreation use is estimated at one visit every 37 acres. Recreation use would probably increase to the estimated average (1 visit per 31 acres) as BLM gains additional public access to those lands.

Economic

Land disposal was assumed to follow the same pattern as the past 10 years in terms of whom land was conveyed to. The pattern for the past 10 years is as follows:

Public land disposed of (conveyed to):

federal agencies	=	9%
state	=	30%
counties	=	5%
private	=	56%

Increases in crop production are based on the analysis in "Impacts to Livestock Grazing Management;" primarily, that some BLM land disposed of could be converted to small-grain production.

The unit value per small-grain acre is \$40.00. This value was derived as a weighted average dollar value of small-grain production in the six counties in the planning area (Chouteau, Fergus, Judith Basin, Petroleum, Phillips, Valley). This value was calculated from Montana Agricultural Statistics 1988.

Reductions in livestock production are based on reductions in AUMs estimated in "Impacts to Livestock Grazing Management."

The unit value per AUM is \$28.00. This figure is based on the following assumptions: In the planning area, livestock production associated with BLM land is estimated to comprise about 14% of total livestock production. Based on figures from the Montana Agricultural Statistics (1988), total livestock receipts are estimated to be \$83,381,000; thus, the portion estimated to be attributable to BLM land (14.1%) is \$11,755,000 (see Chapter 3, Economic Conditions). The \$28.00 unit value was derived by dividing \$11,755,000 by 452,380 which represents the total number of AUMs on BLM land in the planning area.

It is assumed that all agricultural production (livestock and crops) is exported from the planning area.

The increase in economic activity associated with recreation is based on the analysis described in "Impacts to Recreation" which provides estimates of the increase in recreation use. The recreation section estimates what the proportional increase would be in each resource area over current

conditions. This proportion is then applied to the economic estimate of current conditions in terms of economic activity. These proportions also apply to the estimate of changes in “net willingness to pay” for recreational opportunities.

Half of the recreation expenditures are generated by planning area residents and half by nonresidents.

Data obtained from the University of Montana Bureau of Business and Economic Research (BBER) indicate about 1.7% of the timber harvest in the planning area is attributable to BLM land.

Half of the forest harvest attributable to BLM land is processed locally and is exported from the planning area. The other half is processed outside the planning area.

The unit value for harvest processed locally and exported is \$215 per thousand board feet (MBF). The unit value for harvest that was processed outside the planning area is \$160/mbf.

The impacts to hardrock mining are based on the analysis in Appendix C, the Reasonably Foreseeable Development Scenario, in terms of the number of exploration projects, developments, the size and duration of projects.

Estimated changes in PILT are based on the net change in public land in each county in the planning area.

Estimated changes in property tax revenues are based on 1987 estimates for taxable valuation of agricultural land, agricultural production and the average levy for state, county and schools.

Changes in tax revenue are based on the net change in private land in each county in the planning area. They are also based on estimated changes in agricultural production that is subject to taxation.

BLM expenditures are spent in the planning area.

All dollar figures are in 1987 dollars, unless otherwise noted.

The estimates of regional impacts, such as secondary spending and employment effects, were derived using an economic-demographic model developed by the Department of Agriculture Economics of North Dakota State University (NDSU). This model is described in NDSU Agricultural Economics Miscellaneous Report No. 61, titled “Expansion and Adaptation of the North Dakota Economic-Demographic Assessment Model (NEDAM) for Montana: Technical Description” (1982).

Significant impacts which may occur are expressed in terms of the percentage of change from current conditions.

IMPACTS FROM MANAGEMENT COMMON TO ALL ALTERNATIVES

The environmental consequences described in this section apply to all alternatives and are discussed by environmental element. This section describes those impacts from Management Common To All Alternatives and is presented here to avoid repetition.

Some of the information is summarized from environmental impacts identified in the Carpenter Creek-Craig Coulee Management Framework Plan (MFP) Amendment (1986), Bitter Creek Wilderness Environmental Impact Statement (EIS) (1989), Missouri Breaks Wilderness EIS (1987), Prairie Potholes Vegetation Allocation EIS (1981), Missouri Breaks Grazing EIS (1979), Northwest Area Noxious Weed Control Program EIS (1987), Containment/Eradication of Selected Noxious Plants Programmatic Environmental Assessment (EA) (1986), Vegetation Treatment on BLM Lands EIS (1991), Willow Creek Interdisciplinary Watershed Activity Plan EA (1987), Wildlife Habitat Improvement Project Programmatic EA (1978), Animal Damage Control Plan (1987), and Small Sales of Forest Products Programmatic EA (1978).

These documents are regional EISs and EAs which analyzed proposed actions for soils, vegetation allocation, watershed development, grazing, land treatments, wildlife, wilderness, visual resources, cultural, noxious plant control and forest product management on all, or portions of the planning area. Additional information can be found in the respective document. These documents may be obtained through the Lewistown District Office or the resource area offices in Malta and Glasgow.

Managing geothermal, oil shale, coal, geologic and paleontology resources would not impact any of the environmental elements and those resources are not discussed further in this section. Only those environmental elements that would be impacted by Management Common To All Alternatives are discussed.

Impacts to Hardrock Minerals and Oil and Gas from Management Common

From Wilderness Management: There would be no impact to oil and gas development in the Dog Creek South, Bitter Creek or Woodhawk Wilderness Study Areas (WSAs). These areas are not recommended for wilderness designation. Opportunities for exploration and development of oil and gas could be restricted or foregone in portions of the Cow Creek and Antelope Creek WSAs and the entire Burnt Lodge WSA because these areas were recommended suitable for wilderness designation.

From Bentonite Mining: Areas with high potential for bentonite resources would remain open to mineral development. Oil and gas drilling relies heavily on a local supply of this commodity for drilling fluid. The availability of BLM land for this type of activity has a positive impact on oil and gas.

From Hazardous Materials Management: Reviewing mineral authorizations for proper use, control, storage and disposal of hazardous materials could result in longer approval time and more costly operating requirements. This would be a minor negative impact to mineral developers, particularly hardrock mining operations.

From BLM Land Sales: There would be no impact to mineral resources from the land sale identified in the Valley Resource Area (RA). The BLM lots in the Zortman and Landusky Town Sites (in the Phillips RA) have moderate mineral potential. Selling these lots could have a negative impact on mineral development. This would require site-specific evaluation before disposal.

Impacts to Air and Water Quality from Management Common

From Grazing, Vegetation, Wilderness, Watershed, Noxious Plant and Forest Management: Contour furrowing would result in a slight to moderate increase in infiltration rates, no change in aquifer recharge, a slight decrease in peak discharges, a slight reduction in average annual runoff and a slight improvement in drainage. Vegetation treatments and grazing management would decrease sediment and water yield in the long term. Water quality and consumption would also increase in the long term.

There would be a slight chance of water contamination from chemical control of noxious plants. Grazing, recreation and wilderness management would have no residual adverse impacts to air quality.

From Bentonite, Mineral Materials and Solid Minerals Management: Bentonite and gravel mining can create a short-term minor amount of dust. Water often collects in the deep excavations and becomes very saline. After reclamation, there is no residual impact to air or water quality.

Impacts to Soil and Vegetation from Management Common

From Grazing, Vegetation, Wilderness, Watershed, Noxious Plant and Forest Management: Grazing management in the Missouri Breaks Grazing EIS area would slightly decrease soil compaction and the erosion condition class would improve with more acres in the stable

condition class. Sediment yield would decrease in the long term. There would be no residual adverse impacts.

Vegetation management in the Prairie Potholes Vegetation Allocation EIS area would decrease erosion on BLM land in the long term as sediment and water yields decrease. Soil losses from range developments would be minor. Water use would increase slightly due to more livestock.

Controlling noxious plants would increase desirable vegetation productivity.

Logging forest products would result in soil compaction along roads, landings and skid trails which could result in minor soil erosion.

Grazing management methods in the Missouri Breaks Grazing EIS area would improve range condition. Short-term unavoidable impacts from the loss of forage production on contour furrowed, and plowed and seeded lands would occur. Within 2 to 3 years, these lands would be producing more forage than before treatment and in several additional years, would have more than compensated for the lost productivity. Long-term unavoidable impacts would occur on land permanently removed for the life of range improvement projects such as wells, reservoirs, stock tanks and other water developments.

Vegetation management in the Prairie Potholes Vegetation Allocation EIS area would improve rangelands in early seral to mid-seral ecological status to late seral or potential natural community in allotments with existing and proposed allotment management plans (AMPs). Some allotments in early seral to mid-seral ecological status would be slow to respond because of soil characteristics. Other allotments would not be improved because of scattered land patterns. Watershed, wildlife and non-consumptive AUMs could increase 15%.

From Bentonite, Mineral Materials and Solid Minerals Management: Mining would have significant site-specific negative impacts on soil and vegetation in the short term (approximately 5 years) as access roads are built and mining commences. After reclamation, there would be no residual impact to soil or vegetation.

From Hazardous Material Management: Hazardous material contamination of BLM land would be limited by the provisions of this RMP. Damage from hazardous materials to vegetation and soil would not occur.

From Fire Management: Fire management practices would not result in a significant change in burned acres in the grass-shrub type, Fire Management Zone (FMZ) 1. Limiting heavy equipment use would reduce potential damage to soils and vegetation on steep slopes. However, because of the intermingled land pattern in most of the planning area and the high rate of spread in these fuels, most fires would threaten private land. Heavy equipment could

be used in that case. Because of the small number of fires which occur in this area and the soils which respond favorably to disturbance, no impact is expected.

Limiting the use of heavy equipment would have a positive impact in the Missouri Breaks (FMZ 2). Past use of heavy equipment in the Breaks has scarred the landscape, which has shallow soils that do not recover well from major disturbance. Using fire in the Missouri Breaks, either as prescribed burning or skillful management of wildfire, can achieve desired management objectives (Eichhorn and Watts, 1984). Fire in dense ponderosa pine and juniper in the Missouri Breaks increases grass and forb production and can benefit deer, elk and other wildlife.

Intensive suppression efforts would put fires out quickly which allows other vegetation to grow and age; increasing the mountain timber fuel type in FMZ 3. This would maintain the current situation by keeping fires small and maintaining the conifer stands. The risk of large fires would increase as fuels build. This problem would be offset by burning slash piles, thinning lodgepole pine stands and harvesting mature stands of conifers to reduce hazardous fuel buildup.

Using prescribed fire would reduce tree and shrub cover and increase grass and forb production. In some cases, prescribed fire would improve watershed cover. Vegetation types considered for prescribed fire are crested wheatgrass, big sagebrush with canopy coverage of greater than 50%, ponderosa pine and clubmoss-blue grama.

From Leases and Permits: Minor impacts could result from roads or other surface disturbances associated with routine leases and permits.

From Rights-of-Way: Rights-of-way activity can create short-term soil and vegetation disturbances. Natural or near-natural conditions are restored on disturbed areas by planting native vegetation. Upland areas with gentle slopes recover quickly from disturbance and would often be more productive than adjacent undisturbed areas for several to many years after reclamation. Permanent scarring can occur from disturbance on steep slopes with shallow soils, such as the mountain areas and Missouri River Breaks. Careful planning and design of the disturbing activity can normally limit this potential impact.

A common residual impact of rights-of-way is the service road. Some additional or upgraded roads are usually needed to maintain the facility. This results in a minor loss of vegetation and an insignificant increase in erosion.

Impacts to Livestock Grazing Management from Management Common

From Grazing, Vegetation, Wilderness, Watershed, Noxious Plant and Forest Management: There would be

no impact on livestock management including the maintenance of range projects in the Dog Creek South, Woodhawk or Bitter Creek WSAs. There would be no impact on livestock management of the maintenance of range projects in those portions of the Cow Creek and Antelope Creek WSAs recommended as nonsuitable for wilderness designation. There could be minor additional costs to operators due to restricted motorized vehicle use in designated wilderness areas. There would be no change in stocking levels on lands recommended for wilderness.

Grazing management in the Missouri Breaks Grazing EIS area could increase livestock grazing AUMs by 7% in the long term.

Vegetation management in the Prairie Potholes Vegetation Allocation EIS Area could increase vegetation production by 15% in the long term. In allotments with AMPs, the expected increase is about 27%. Riparian vegetation along streams and below reservoirs would increase significantly. There would be a moderate increase in livestock and use (numbers or extension of the grazing season).

From Bentonite, Mineral Materials and Solid Minerals Management: Forage production on BLM land used for bentonite and gravel mining is very low and there would be little impact to grazing. Usually less than 10 acres are disturbed and after reclamation, there would be no residual impact to grazing management.

From Recreation Management: Recreation would have very little impact on grazing management. However, the increased number of people using BLM land during the fall increases the chances of a gate being left open or otherwise disrupting the planned grazing schedule.

From Fire Management: Prescribed fire in the Missouri Breaks can achieve desired management objectives. Fires in dense ponderosa pine and juniper increase grass and forb production and can benefit livestock grazing.

Impacts to Wildlife from Management Common

From Grazing, Vegetation, Wilderness, Watershed, Noxious Plant and Forest Management: Mule deer populations would not be impacted in the Dog Creek South, Bitter Creek and Woodhawk WSAs because they were not recommended for wilderness designation. Wilderness could provide some benefits to wildlife by providing a secure area and protecting habitat.

Grazing management in the Missouri Breaks Grazing EIS area would result in short-term mule deer declines immediately around new reservoirs. Vegetation treatment sites would provide additional habitat through improved cover and forage availability. This would create a slight

improvement in white-tailed deer and elk habitat and no change in antelope habitat. There would be a decrease in sharp-tailed grouse near new reservoirs and a considerable local improvement for waterfowl as aquatic vegetation matures and new waters are developed.

Vegetation management in the Prairie Potholes Vegetation Allocation EIS Area would improve big game habitat. Vegetation for big game would increase 16% in the long term. There would be an improvement in upland game bird habitat, waterfowl production and shoreline vegetation.

Controlling noxious plants would improve wildlife habitat. There would be a slight possibility of damaging fisheries when using chemicals to control noxious plants.

From Bentonite Mining, Mineral Materials, and Solid Minerals Management:

Mining would disturb grass and shrub vegetation communities. These communities provide some habitat for mule deer, antelope, sage grouse, small mammals and song birds. Mining would displace most animals by removing vegetation. Some winter range could be disturbed if sagebrush or other shrubs important to wildlife are removed during mining. Wildlife would be disturbed in the immediate vicinity of mining activities. Some animals would be killed as machinery, man and wildlife come into contact with each other. The larger animals are less dependent on the vegetation disturbed by mining activities and would disperse, while smaller animals may be lost. The mine site could range from 5 to 100 acres and the area would be reclaimed after mining is complete.

From Cave Resource Management: Caves contain various species such as insects, birds and mammals. Insects hibernate in caves during the late fall and winter periods. Birds may nest in or near cave entrances during the summer but usually migrate south during the winter. Most mammals use cave entrances for shelter, but do not normally utilize the intensive dark and deep reaches of the cave. Bats use caves in the summer and usually migrate to a hibernaculum during the winter. A cave management plan would consider the wildlife values of each cave and establish mitigating measures to protect and manage the uniqueness of each cave. This would have a positive impact on wildlife.

From Hazardous Material Management: The use and storage of hazardous materials would be evaluated and mitigation developed to protect wildlife. This would have a positive benefit to wildlife.

From Recreation Management: Most wildlife use and enjoyment is associated with recreation and many recreation facilities are developed to interpret or enjoy wildlife. The facilities attract people to an area and the concentration of people disturbs, displaces and sometimes removes wildlife in and near these facilities. With proper management and education of the public, these impacts would be minimized and benefit the public through enjoyment of wildlife resources.

From Fire Management: Fire management can reduce dense stands of sagebrush, juniper, etc. and allow other plant species (grasses and forbs) to invade these areas, thus improving wildlife habitat.

Uncontrolled fire can be very detrimental to wildlife. Fire can remove large stands of juniper and sagebrush from winter ranges and reduce or eliminate wildlife populations on burned areas. The severity of the burn could prevent reestablishment of shrubs for over 10 years. This can be a significant negative impact to wildlife in the short and long term if reestablishment of shrubs does not occur.

From Rights-of-Way: Rights-of-way involving trenching would have short-term negative impacts to wildlife while a trench is open.

Impacts to Forestry from Management Common

From Recreation Management: Recreation management would have little or no impact on forest resources. Upgrading and maintaining existing recreation sites would have no impact on forestry. Wildlife viewing areas, the Back Country Byways program, interpretive site development, scenic overlooks and identification of paleontological sites would have no impact on the annual allowable cut, but could constrain harvest levels.

From Fire Management: There would be a positive impact on forest resources by protecting and preserving the resource values.

From Leases and Permits: There could be a negative impact on forest resources, depending on the location and type, size and duration of the permit or lease.

From Rights-of-Way: Issuing rights-of-way could have a positive impact by building roads and providing access to previously uneconomic stands of timber.

Impacts to Cultural Resources from Management Common

From Bentonite Mineral Materials and Solid Minerals Management: A cultural resource inventory would be conducted on proposed mining areas. Where impacts to significant cultural resources are likely, mitigation measures would be employed to minimize impacts.

From Recreation Management: Some cultural properties may be interpreted for public use. Prior to this use, mitigation measures would be employed to recover all usable information. Acceptable impacts to cultural resources should be anticipated.

From Fire Management: Cultural properties could be disturbed by fire line construction and/or mechanical disturbance. If cultural properties were disturbed, the information in the disturbed areas could be recovered and the properties stabilized.

Impacts to Recreation from Management Common

From Grazing, Vegetation, Wilderness, Watershed, Noxious Plant and Forest Management: Primitive, non-motorized recreational opportunities would be preserved or enhanced on areas closed to motorized vehicles. There would be no impacts to recreational off-road vehicle (ORV) use in the Dog Creek South, Bitter Creek and Woodhawk WSAs because they are recommended unsuitable for wilderness designation. Recreational ORV use would decline in the Cow Creek, Antelope Creek and Burnt Lodge WSAs because they are recommended suitable for wilderness designation.

Grazing management in the Missouri Breaks Grazing EIS area would slightly increase hunting opportunities and improve recreation quality. There would be no significant change in fishing or off-road vehicle use.

Vegetation management in the Prairie Potholes Vegetation Allocation EIS area would significantly increase the recreation opportunities for big game hunting; a positive impact.

Controlling noxious plants would maintain or enhance recreation and aesthetics.

From Bentonite Mining: Bentonite exploration and/or development would have a minor adverse impact, primarily on hunting. This would be short term, 5 years or less, until reclamation is completed.

From Cave Resource Management: Recreation would increase slightly as additional cave locations are found, inventoried and become known. The impact on recreation use and quality would be positive.

From Recreation Management: The opportunities for recreation and the quality of recreation could decline through minimal maintenance of facilities and the potential closing of some undeveloped sites; a negative impact. Additional facilities and maintenance would be coordinated through partnerships and volunteers. If this occurs, the opportunities for dispersed recreation activities would increase along with the quality of undeveloped sites; a positive impact.

The quality of recreation could be enhanced by increasing the opportunities to view wildlife in the field.

Recreation use could increase moderately with the Back Country Byways program. The quality of recreation could

be significantly enhanced, especially for the sightseer and those who drive for pleasure.

Recreation use could moderately increase with interpretive site development, but the quality of recreation could be significantly enhanced, especially for history buffs and for sightseers.

Recreation use could increase slightly with trail development, while the quality of recreation would be enhanced.

From Fire Management: Fire management would have a positive impact on recreation use and the quality of recreation by protecting and preserving the resource values.

From Leases and Permits: Impacts on recreation use and quality would be considered on an individual basis.

From Rights-of-Way: Avoidance areas would have a moderate positive impact on recreation use and a significant positive impact on the quality of recreation. Rights-of-way outside of these areas would be considered on a case-by-case basis. Issuing rights-of-way could have a negative impact on recreation use and the quality of recreation, depending on type and size.

Impacts to Visual Resources from Management Common

From Grazing, Vegetation, Wilderness, Watershed, Noxious Plant and Forest Management: Grazing systems in the Missouri Breaks Grazing EIS area would slightly improve scenic quality. Disturbances would decrease over time, due to rehabilitation in range improvements. Vegetation management in the Prairie Potholes Vegetation Allocation EIS Area would not change the visual resources.

From Bentonite Mining: The visual quality would deteriorate in areas where bentonite exploration and/or development would occur. These activities would impact line, form and color of the natural landscape. The overall impacts to visual qualities would be mitigated by using regulations on public domain and through appropriate measures on acquired land.

From Mineral Materials Management: The small amount of acreage disturbed would create negligible impacts. However, the location of a disturbed area can create significant impacts regardless of its size. Line, form and color would be impacted in site-specific areas in the short term, until reclamation is completed.

From Solid Minerals Management: The exploration and development of these mineral resources would impact visual qualities; affecting line, form and color of the natural landscape. Mitigating measures would be developed through

the prospecting permit process which would lessen the potential negative impact on visual quality.

From Recreation Management: Recreation management would maintain visual qualities. Trail development would be a minor negative impact affecting line, form and color of the natural landscape by constructing and/or continuing trails.

From Fire Management: Fire management would have a positive impact on visual quality by protecting and preserving the resource values.

From Leases and Permits: There could be a negative impact on the visual quality, depending on the type, size and duration of the permit or lease. Line, form and color of the natural landscape could be negatively impacted.

From Rights-of-Way: Avoidance areas would have a significant positive impact on visual quality because of the absence of intrusions. Rights-of-way outside of avoidance areas would be considered on a case-by-case basis. Issuing rights-of-way could have a negative impact on the visual quality, depending on type, size and duration of the right-of-way. Line, form and color of the natural landscape could be affected.

Impacts to Economic Conditions from Management Common

From Grazing, Vegetation, Wilderness, Watershed, Noxious Plant and Forest Management: Some permittees would incur additional costs and labor in the Cow Creek, Antelope Creek and Burnt Lodge WSAs if they are designated suitable by Congress.

Grazing management in the Missouri Breaks Grazing EIS area would increase annual direct livestock income from BLM land and employment. There would be no new direct employment from construction.

Vegetation management in the Prairie Potholes Vegetation Allocation EIS Area would have a moderate positive impact overall. Ranch income and permit values would increase for some ranches. Ranch employment would increase, but the overall impact to the regional area would not be significant.

In the short term, some ranch operations would experience a disruption of grazing as mechanical treatments are applied and/or grazing systems implemented. Licensed livestock grazing levels would be reduced slightly following implementation of the proposed action. While these changes could represent a significant impact to a few individual operators in the short term, when land was out of production, they would not be significant to the regional economy. The full implementation of AMPs would increase licensed use

above present levels. In the long term, some operations would show an increase in livestock sales, but most would experience no change.

Recreation opportunities would be enhanced with improved wildlife habitat. In the short term, there would be little or no impact on recreation related earnings and employment. In the long term, recreation expenditures would increase, but this change would not be significant to the regional economy.

Controlling noxious plants would benefit the agricultural economy.

From Bentonite, Mineral Materials and Solid Minerals Management: Exploration and development of bentonite, mineral materials and solid minerals resources could impact economic activity, employment, tax revenues, public services and infrastructure. Market conditions as well as changes in technology could impact the potential for development of minerals and materials.

From Recreation and Cave Resource Management: Economic activity associated with recreation management and cave resources could impact economic conditions. Long-term recreation opportunities and demand could increase regional economic activity, primarily in retail trade and services. Improved conditions for non-consumptive recreation opportunities, such as wildlife viewing, could increase economic activity throughout the planning area.

From Fire and Hazardous Materials Management: Fire management would protect resources and maintain economic activity. Hazardous materials management could increase costs for mineral developers; a minor impact.

From BLM Land Sales, Leases and Permits and Rights-of-Way Management: BLM land sales would have a minor positive impact on taxable valuation and property taxes. Leases and permits could create impacts to economic conditions depending on the type, size and location. Rights-of-way avoidance areas could cause an utility or transportation corridor to take a longer route and increase the cost of construction for transmission lines.

Impacts to Social Conditions from Management Common

From Grazing, Vegetation, Wilderness, Watershed, Noxious Plant and Forest Management: An economic gain would be realized by ranch operations with an increase in grazing permit values and ranch employment in the Missouri Breaks and Prairie Potholes area. This would improve the social well-being of ranch families.

From Bentonite, Mineral Materials and Solid Minerals Management: If impacts occurred to population and

public services, community social organization and social well-being could be impacted. There could be a minor decrease in recreation quality and quantity which could reduce the social well-being for recreationists.

From Cave Resource, Hazardous Materials, Recreation and Fire Management: There could be an increase in recreation quality and opportunities which would enhance the social well being for recreationists. An increase in recreation use could cause increases in problems for ranchers such as gates left open, leading to declines in the social well-being of affected ranchers.

From BLM Land Sales, Leases and Permits and Rights-of-Ways Management: Changes to population and public services could impact community social organization and social well-being. There could be negative impacts to recreation quality and opportunities which could diminish the social well being of recreationists.

IMPACTS BY ALTERNATIVE

This section describes the environmental consequences from implementing the five alternatives. The impacts are discussed for each environmental element by issue and alternative.

IMPACTS TO OIL AND GAS

From Land Acquisition and Disposal

Alternatives A (Current), B, C, D & E (Preferred): Many of the lands identified for disposal have moderate to high development potential for oil and gas. In cases where the mineral estate is retained, creating split estate situations, a minor negative impact would result from additional administrative problems in permitting activity.

From Access to BLM Land

Alternatives A (Current), B & C: Existing access is adequate to allow oil and gas activity to proceed. Access to BLM land would have no impact on oil and gas exploration and development.

Alternatives D & E (Preferred): Most of the lands identified for access have recreational value. These lands do not correspond with areas that are currently active for oil and gas activity. Additional access would create a minor positive impact on oil and gas by simplifying the process of obtaining access to leased land.

From Off-Road Vehicle Designations

Alternative A (Current): No impact to oil and gas exploration and development.

Alternative B: Allowing the maximum amount of BLM land open to ORVs would be a positive impact to geophysical exploration, by reducing the amount of permitting required.

Alternative C: Approximately 984,000 BLM acres would have either seasonal or yearlong restrictions on off-road travel. Most of this land is available for oil and gas leasing, exploration and development. Geophysical contractors, surveyors and others which have been allowed to travel off-road to locate lines, potential access routes and stake drilling locations would have to obtain permission from the authorized officer to travel off-road. This would create a minor negative impact to oil and gas exploration.

Alternative D: All BLM land within the planning area would be subject to some type of off-road travel restriction. This would increase the amount of administrative approval required before routine activity associated with oil and gas exploration could occur. Geophysical contractors would need permission from the authorized officer to travel off-road. Permission would also be required before a surveyor could enter leased land to stake a drilling location. This would be a minor negative impact to oil and gas exploration and development.

Alternative E (Preferred): Approximately 814,000 acres would have either seasonal or yearlong restrictions on off-road travel. ORV designations would not impact oil and gas exploration and development. Oil and gas interests are entitled to administrative access under the appropriate mineral development regulations. Approximately 1,990,000 acres would be open to off-road travel and would not impact oil and gas exploration and development.

From Oil and Gas Leasing and Development

Alternative A (Current): About 3.2 million acres of BLM land would be open to oil and gas leasing with standard stipulations (see Appendix B). This would be a positive impact to oil and gas exploration and development.

About 19,000 acres would have No Surface Occupancy restrictions or seasonal stipulations and 138,000 acres would remain closed to leasing. This would be a minor negative impact to oil and gas exploration and development.

Alternative B: Most of the planning area (97%) would be open to oil and gas leasing with standard lease terms. This would have a positive impact on oil and gas exploration and development.

Alternative C: Stipulations would apply to about 2.7 million acres of BLM land. This would be a minor negative impact to oil and gas exploration and development.

Standard lease terms would be used to protect wildlife and other surface concerns on about 441,000 acres. This would be a positive impact to oil and gas exploration and development by reducing the delay in processing leases and subsequent permits on BLM land.

Alternative D: Approximately 64% of the BLM land within the planning area would be either closed to leasing or leased with a No Surface Occupancy restriction. The shallow depth and limited production potential of the gas reservoirs in this area make directional drilling an uneconomic technology. A No Surface Occupancy restriction could have the same effect as closing the area to leasing. This would be a major negative impact to oil and gas exploration.

About 441,000 acres of BLM land would be open to oil and gas leasing with standard lease terms. Oil and gas exploration and development on these lands would be conducted with a minimum of administrative delay. This would be a positive impact to oil and gas exploration and development.

Alternative E (Preferred): The majority of the BLM land with high development potential (74%) would be available for oil and gas leasing with standard lease terms. This would be a positive impact to oil and gas exploration and development with minimum permitting delay and administrative processing.

There would be moderate development potential land subject to stipulations and No Surface Occupancy restrictions which would be a minor negative impact to oil and gas exploration and development.

From Hardrock Mining

Alternatives A (Current), B, C, D & E (Preferred): No impact to oil and gas exploration and development.

From Riparian and Wetland Management of Watersheds

Alternative A (Current): No impact to oil and gas exploration and development.

Alternative B: This alternative would place standard lease terms on oil and gas leases within riparian-wetland areas. This would have a positive impact on oil and gas exploration and development by allowing more access to the water sources needed to conduct drilling operations. It would also reduce the need to reroute pipelines to avoid restricted areas.

Alternatives C, D & E (Preferred): No impact to oil and gas exploration and development.

From Elk and Bighorn Sheep Habitat Management

Alternative A (Current): Seasonal restrictions on oil and gas leases would be applied to about 571,000 acres to protect elk habitat. This would limit exploration activities to the summer and fall; a minor negative impact to oil and gas exploration and development.

About 14,000 acres in south Valley County would be restricted by No Surface Occupancy to protect elk habitat. This would be a negative impact to oil and gas exploration and development by placing the land off limits to drilling and producing facilities.

Alternative B: Timing restrictions of up to 60 days would apply to elk and bighorn sheep habitat and would delay activities during certain times of the year. This would create a moderate negative impact to oil and gas exploration. There would be no impact to production, since the timing restrictions apply only to exploration activities.

Alternative C: Winter range and calving areas would contain seasonal stipulations which limit the time for conducting surface disturbing activities to the summer and fall. This would be a minor negative impact to oil and gas exploration and development.

Alternative D: Elk and bighorn sheep winter habitat which has been open to oil and gas leasing and development, with seasonal restrictions, would now be subject to No Surface Occupancy restrictions. This would be a major negative impact to oil and gas exploration and development.

Alternative E (Preferred): The impacts would be the same as those in Alternative C.

From Prairie Dog and Black-Footed Ferret Management

Alternative A (Current): About 10,680 acres in south Phillips County would be protected by a No Surface Occupancy restriction to protect prairie dog towns identified as potential reintroduction areas for black-footed ferrets. This would be a negative impact to oil and gas exploration and development. For open areas, a ferret inventory would be required before surface disturbing activities could be conducted. This would cause delay in the permitting process; a negative impact to oil and gas exploration and development.

Alternative B: The oil and gas lease terms that apply to all surface concerns would be implemented to mitigate impacts.

It is anticipated that in most cases the timing and relocation distance would be applied to the area identified for protection. This would create a moderate negative impact to oil and gas exploration. There would be no impact to production, since the timing restrictions apply only to exploration. The endangered status of the black-footed ferret means that all decisions involving activities within areas designated as potential habitat for this species would be reviewed by the U.S. Fish and Wildlife Service under the provisions of the Endangered Species Act. This could result in applying restrictions beyond those in the standard terms to oil and gas exploration and development activity on 6,462 BLM acres in Phillips County. The possibility of denying exploration and development activity, as a result of T&E consultation, exists. This would have a negative impact on oil and gas exploration and development. It is not anticipated that oil and gas exploration and development would be disrupted.

Alternative C: BLM land within Complex 1+2 (approximately 70,000 acres) would be open to oil and gas leasing with a No Surface Occupancy restriction. This would be a negative impact on oil and gas exploration and development. The shallow depth and limited production potential of the gas reservoirs in this area make directional drilling an uneconomic technology. A No Surface Occupancy restriction could have the same effect as closing the area to leasing.

Alternative D: The impacts would be similar to Alternative C, except a No Surface Occupancy restriction would apply to BLM land within the 7km Complex (approximately 400,000 acres).

Alternative E (Preferred): About 12,300 acres in south Phillips County would be protected by a Controlled Surface Use restriction to protect prairie dog towns identified for reintroduction of the black-footed ferret. This would be a negative impact to oil and gas exploration and development.

From the Judith Mountains Scenic Area ACEC

Alternatives A (Current) & B: No impact to oil and gas exploration and development.

Alternative C: Approximately 4,566 acres would be subject to special lease stipulations to mitigate visual impacts from exploration and/or development activity. This would be a minor negative impact to oil and gas exploration. This area has not been actively leased and explored for oil and gas.

Alternative D: Approximately 4,566 acres would be subject to a No Surface Occupancy restriction. This would be a minor negative impact to oil and gas exploration. This area has not been actively leased and explored for oil and gas.

Alternative E (Preferred): Approximately 3,702 acres would be subject to lease stipulations to mitigate visual impacts from exploration and/or development activity. This would be a minor negative impact to oil and gas exploration. This area has not had interest for leasing or development from industry, but is open to leasing.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to oil and gas exploration and development.

From the Square Butte ONA ACEC

Alternative A (Current): Closing 1,947 acres to oil and gas leasing could be a negative impact to oil and gas exploration and development.

Alternative B: BLM land that has been closed to leasing would now be available for leasing. This would allow the land to participate in any production that might result from exploration on adjacent land. This would create a positive impact to oil and gas exploration and development.

Alternatives C & D: The impacts would be the same as those in Alternative A.

Alternative E (Preferred): The ACEC would have a 1/4-mile perimeter with a No Surface Occupancy restriction to accommodate possible participation in production from future exploration on adjacent lands. This would be a positive impact to oil and gas exploration and development.

From the Collar Gulch ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to oil and gas exploration and development.

From the Azure Cave ACEC

Alternative A (Current): No impact to oil and gas exploration and development.

Alternative B: This area would be open to oil and gas leasing; a positive impact to oil and gas exploration and development.

Alternatives C, D & E (Preferred): No impact to oil and gas exploration and development.

From the Big Bend of the Milk River ACEC

Alternatives A (Current) & B: No impact to oil and gas exploration and development.

Alternative C: BLM land which has been open to oil and gas leasing with standard stipulations would be leased subject to a No Surface Occupancy restriction. This would be a minor negative impact to oil and gas exploration and development. The area contains federal minerals that are fully committed to the Ashfield and Bowdoin Unit Agreements. There are numerous producing wells and associated facilities within the ACEC. All of the existing leases would be subject to the original terms and stipulations. The No Surface Occupancy restriction would not apply to activity on these leases.

A No Surface Occupancy restriction would have the same effect as closing some of the area to leasing. The shallow depth and low volumes of commercial gas production in this area makes directional drilling an uneconomic technology. The BLM land within the potential ACEC that is not currently leased would be subject to No Surface Occupancy restrictions. All BLM land within the potential ACEC are rated as high for both occurrence and development potential.

Alternative D: Under this alternative 10,720 BLM acres, which have been open to oil and gas leasing with standard stipulations, would be leased subject to a No Surface Occupancy restriction. All BLM land within the potential ACEC is rated as high for both occurrence and development potential. The ACEC area contains federal minerals that are fully committed to the Ashfield and Bowdoin Unit Agreements. There are numerous producing wells and associated facilities within the ACEC. All of the existing leases would be subject to the original terms and stipulations. The No Surface Occupancy restriction would not apply to activity on these leases. A No Surface Occupancy restriction would have the same effect as closing some of the area to leasing. The shallow depth and low volumes of commercial gas production in this area makes directional drilling an uneconomic technology. The BLM land within the potential ACEC that is not currently leased would be subject to No Surface Occupancy restrictions.

Alternative E (Preferred): There would be no impact to oil and gas exploration and development from designating the Beaucoup Site an ACEC.

BLM land within the Henry Smith Site would be subject to a No Surface Occupancy restriction. The shallow depth and limited production potential of the gas reservoirs in this area make directional drilling an uneconomic technology. A No Surface Occupancy restriction could have the same effect as closing the area to leasing. This would be a minor negative impact to oil and gas exploration and development since this area is located within a high development potential area.

IMPACTS TO HARDROCK MINERALS

From Land Acquisition and Disposal

Alternatives A (Current), B, C, D & E (Preferred):

Disposing of BLM land would increase split estate because most exchanges are for surface values rather than mineral. In most cases, the mineral estate is at least prospectively valuable and would be retained in federal ownership.

Acquisition and disposal could increase the likelihood of surface owner conflicts with mineral development, which leads to increased permitting complexity and development costs. This would be a minor negative impact due to the small acreage of the disposal tracts relative to the total amount of BLM land in the planning area. Exchanges specifically for minerals would facilitate mineral development.

From Access to BLM Land

Alternative A (Current): Under the appropriate regulations, administrative access would be provided to mineral developers. Increased signing would assist mineral interests in identifying areas with existing access routes or restrictions; a positive impact.

Alternatives B & C: No impact to hardrock mineral resources.

Alternatives D & E (Preferred): The impacts would be the same as those in Alternative A.

From Off-Road Vehicle Designations

Alternatives A (Current), B, C, D & E (Preferred): ORV designations would not impact mineral exploration and development. Mineral interests are entitled to administrative access under the appropriate mineral development regulations.

From Oil and Gas Leasing and Development

Alternatives A (Current), B, C, D & E (Preferred): Oil and gas leasing and development would not impact other mineral exploration and development. Increased mineral material needs for road work and general construction purposes would occur in areas with oil and gas development.

From Hardrock Mining

Alternative A (Current): Appendix C describes a reasonably foreseeable development (RFD) scenario for hardrock exploration and development. The RFD is based on mineral resource potential and would not change should this alternative be selected.

The existing withdrawals on Judith Peak and Red Mountain would be revoked. These areas have high occurrence potential and moderate development potential for locatable minerals. Revoking these withdrawals would be a positive impact to mineral resource development.

Table 4.1 shows the acres of hardrock mineral development potential by management category.

TABLE 4.1 BLM ACREAGE OF MINERAL DEVELOPMENT POTENTIAL BY MANAGEMENT CATEGORY (ALTERNATIVE A)			
Development Potential	Management Category		
	Open	Restricted	Closed
High	7,775 (99%)	0 (0%)	99 (1%)
Moderate	40,256 (99%)	0 (0%)	420 (1%)
Low	29,553 (84%)	5,538 (16%)	175 (<1%)

Note: "Open" lands are open to location under the mining laws and are not special category lands such as ACECs, WSAs, wild and scenic rivers, areas closed to ORV use, etc. as defined in 43 CFR 3809.1-4. Lands in the "closed" category have been withdrawn, or segregated from operation of the mining laws and are not available for mineral development. "Restricted" lands remain open to operation of the mining laws and are available for mineral development, yet special management restrictions apply. These restrictions do not allow operations under the Notice provision of the regulations (a Plan of Operations is necessary) and can result in increased environmental mitigation costs.

Source: BLM, 1990

Most of the land with high and moderate hardrock mineral development potential is in the open category. The 5,538 acres of low development potential lands, in the restricted management category, lie within the Cow Creek WSA. The mineral development potential of these lands is related to the diamond-bearing potential of the ultramafic diatremes in this area.

In general, the current management situation is very favorable to hardrock exploration and development. The vast majority of the high and moderate potential lands would be open to operation of the mining laws without special management restrictions.

Hardrock mining would not inhibit other mineral development on BLM land. Mineral development of other commodities can usually be accommodated. Developing hardrock extraction and processing facilities would require a proportional amount of construction materials such as bentonitic shales for low permeability impoundment liners, or gravel for road building and maintenance. Concurrent mining of limestone resources for pH control may also be necessary.

Alternative B: The existing withdrawals on Judith Peak and Red Mountain would be revoked. These areas have high occurrence potential and moderate development potential for locatable mineral resources. These areas would probably be explored when the withdrawal is revoked; a positive impact to mineral resource development.

Revoking the withdrawals in the Little Rocky Mountains would increase exploration and development opportunities; a positive impact to mineral resource development.

Table 4.2 shows the acres of hardrock mineral development potential by management category.

TABLE 4.2 BLM ACREAGE OF MINERAL DEVELOPMENT POTENTIAL BY MANAGEMENT CATEGORY (ALTERNATIVE B)			
Development Potential	Management Category		
	Open	Restricted	Closed
High	7,874 (100%)	0 (0%)	0 (0%)
Moderate	40,522 (100%)	0 (0%)	54 (<1%)
Low	29,648 (84%)	5,538 (16%)	80 (<1%)

Source: BLM, 1990

The majority of the lands with high and moderate hardrock mineral development potential are in the open category. The 5,538 acres of low development potential lands in the restricted management category are in the Cow Creek WSA. The mineral potential of these lands is related to the diamond-bearing potential of the ultramafic diatremes in this area.

This alternative would generally be very favorable to hardrock mineral exploration and development; a positive impact to mineral resources. Additional exploration opportunities would be available, but would probably not result in a substantial increase in exploration or mining projects.

Impacts to other mineral development would be the same as those in Alternative A.

Alternative C: The existing withdrawals on Judith Peak and Red Mountain would be revoked. These areas have high occurrence potential and moderate development potential for locatable minerals. Revoking these withdrawals would be a positive impact to mineral resource development. Table 4.3 shows the acres of hardrock mineral potential by management category.

TABLE 4.3 BLM ACREAGE OF MINERAL DEVELOPMENT POTENTIAL BY MANAGEMENT CATEGORY (ALTERNATIVE C)			
Development Potential	Management Category		
	Open	Restricted	Closed
High	7,419 (94%)	356 (5%)	99 (1%)
Moderate	34,453 (85%)	5,971 (15%)	252 (<1%)
Low	28,477 (81%)	6,659 (19%)	130 (<1%)

Source: BLM, 1990

This alternative would reduce hardrock development opportunities. Approximately 10 mineral exploration projects could be foregone in the Judith Mountains. It is estimated that one underground mining operation could be foregone in the Collar Gulch ACEC and two open-pit operations could be foregone in the Judith Mountains Scenic Area ACEC.

Management prescriptions in the Judith Mountains Scenic Area ACEC could restrict developing mineral resources by open-pit mining methods on some lands within the ACEC. This would be a significant negative impact to mineral resource development if an ore body could not be developed by other methods.

Management prescriptions for the Collar Gulch ACEC could restrict locating mineral processing facilities that use chemicals detrimental to the westslope cutthroat trout. This could make individual mining operations infeasible due to facility siting difficulties and/or requiring increased haulage distances.

The Azure Cave ACEC includes high and moderate development potential land. It also includes an existing withdrawal that contains high and moderate mineral development potential (see Supplemental Color Map J located at the conclusion of the Appendices). That portion of the ACEC open to mineral entry would require a Plan of Operations, where a Notice would usually suffice. This would represent a minor negative impact to mineral development. The withdrawn portion of the ACEC could be a significant impact on mineral development, should an economic deposit be identified.

Impacts to other mineral development would be the same as those in Alternative A.

Alternative D: This alternative would withdraw large areas with mineral development potential. Withdrawals would involve 60% of the high development potential land, 72% of the moderate development potential land and 79% of the low development potential land in the Judith RA. In the Phillips RA, 93% of the high development potential land would remain open, but 36% of the moderate development potential land would be closed.

The effect of these withdrawals on mineral exploration and development would be significant. Based on the RFD scenario in Appendix C, in the Little Rocky Mountains, 16 exploration projects and 2 mine development projects could be foregone. In the Judith Mountains, 33 exploration projects and 4 mine development projects (2 open-pit and 2 underground) could be foregone. In the Moccasin Mountains, 10 exploration projects and 1 mine development project could be foregone.

Table 4.4 shows the acres with hardrock mineral development potential by management category.

TABLE 4.4 BLM ACREAGE OF MINERAL DEVELOPMENT POTENTIAL BY MANAGEMENT CATEGORY (ALTERNATIVE D)			
Development Potential	Management Category		
	Open	Restricted	Closed
High	5,774 (73%)	240 (3%)	1,860 (24%)
Moderate	16,167 (40%)	100 (<1%)	24,409 (60%)
Low	21,372 (61%)	5,538 (16%)	8,356 (23%)

Source: BLM, 1990

Impacts to other mineral development would be the same as those in Alternative A.

Alternative E (Preferred): This alternative would close 1% of high and moderate development potential land; and less than 1% of low development potential land, in the planning area (see Table 4.5). Approximately 11% of the lands with moderate development potential would be in the restricted category, due mostly to ACEC designation.

The designation of ACECs and associated management prescriptions is estimated to have a possible negative impact to hardrock exploration and mining. The overall effect could be loss of five exploration projects, as well as the possible development of one large open-pit type deposit (see Appendix C and Table C.7).

The Judith Mountains Scenic Area ACEC requirements could impact mineral development on some BLM lands within the ACEC.

Designating Azure Cave in the Little Rocky Mountains as an ACEC would not impact mineral development since these lands are currently withdrawn.

Table 4.5 shows the hardrock mineral development potential by management category.

<p>TABLE 4.5 BLM ACREAGE OF MINERAL DEVELOPMENT POTENTIAL BY MANAGEMENT CATEGORY (ALTERNATIVE E)</p>			
Development Potential	Management Category		
	Open	Restricted	Closed
High	7,619 (97%)	156 (2%)	99 (1%)
Moderate	35,840 (88%)	4,584 (11%)	252 (1%)
Low	28,917 (82%)	6,219 (18%)	130 (<1%)

Source: BLM, 1990

The 6,219 acres of low development potential lands in the restricted management category include 5,538 acres in the Cow Creek WSA. The development potential of these lands is related to the diamond bearing potential of the ultramafic diatremes in this area.

Impacts to other mineral development would be the same as those in Alternative A.

From Riparian and Wetland Management of Watersheds

Alternatives A (Current), B, C, D & E (Preferred): Managing these resources would not create a significant impact on mineral development. Project specific requirements for reclaiming riparian-wetland areas would be required during environmental review.

From Elk and Bighorn Sheep Habitat Management

Alternatives A (Current) & B: No impact to hardrock mineral resources.

Alternative C: Special protective mitigating measures for elk and bighorn sheep habitat would be a minor negative impact to hardrock mineral exploration and development. Other mineral resources would not be impacted.

Alternative D: Withdrawing areas in the Judith, North Moccasin and Little Rocky Mountains to protect elk and bighorn sheep habitat would be a significant negative impact to hardrock mineral exploration and development. These areas contain more than 33% of the high and moderate hardrock development potential land.

Alternative E (Preferred): The impacts would be the same as those in Alternative C.

From Prairie Dog and Black-Footed Ferret Management

Alternatives A (Current), B, C, D & E (Preferred): Impacts to bentonite mining could occur if mineral development proposals coincide with ferret reintroduction areas. The probability of this occurring is considered low due to reintroduction areas being located away from the areas with proven bentonite potential. Ferret reintroduction could be attempted on an experimental non-essential basis. This means that other potential land uses would not be preempted by ferret reintroduction.

From the Judith Mountains Scenic Area ACEC

Alternatives A (Current) & B: The scenic area would not be designated an ACEC. This would allow hardrock mineral exploration and development to proceed as anticipated in the RFD scenario (see Appendix C). Hardrock activity in these areas would still be required to prevent unnecessary or undue degradation of visual resources.

Alternative C: The ACEC designation would require operators who normally submit a Notice to submit a Plan of Operations. The additional filing and processing requirements of a Plan would be a minor negative impact to mineral operators.

The management prescriptions in the scenic area could restrict developing hardrock resources by open-pit mining methods. This could result in the potential loss of two open-pit mining operations if an ore body could not be developed by other methods; a significant negative impact.

Alternative D: The impacts would be similar to Alternative C, except the withdrawal would remove the lands from mining claim location, exploration and development. In addition to the two potential open-pit mining operations foregone in Alternative C, there could also be the loss of one, or more, underground mining development opportunities. This would be a significant negative impact.

Alternative E (Preferred): The requirement to file a Plan of Operations, where a Notice would normally suffice,

would be a minor negative impact to mineral operators and development.

Designation of the Judith Mountain Scenic Area ACEC, with the associated management prescriptions, could have a significant negative impact on hardrock mineral development. Most hardrock operations could be accommodated in the ACEC using the management prescriptions described in Chapter 2. The exception would be in the case of a large open-pit mining operation situated such that it would be either economically impractical or technically unfeasible to reclaim the landscape back to VRM Class II condition. Assuming optimistic mineral potential for the area such an operation could be foregone under this alternative; however, the probability of such an impact occurring is not definite.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current) & B: The area would not be designated an ACEC and would remain open to mineral development activities. Stipulations would be required to mitigate impacts from mineral development to avoid unnecessary or undue degradation.

Alternative C: Approximately 817 acres would be designated an ACEC and left open to mineral entry. ACEC designation would require a Plan of Operations instead of a Notice; a negative impact to locatable mineral operators seeking to explore and develop bentonite resources.

Alternative D: Withdrawing 3,619 BLM acres from mining claim location would be a locally significant negative impact to locatable mineral resource development; particularly bentonite resources, which have a high occurrence potential in this area.

Alternative E (Preferred): Approximately 2,463 acres would be designated an ACEC and left open to mineral entry. ACEC designation would require a Plan of Operations instead of a Notice; a negative impact to locatable mineral operators seeking to explore and develop bentonite resources.

From the Square Butte ONA ACEC

Alternative A (Current): The area would remain closed to mineral entry and development. There would be no impact to mineral development because of the low mineral potential of these lands.

Alternative B: Opening these lands to mining claim location would be a **minor** positive impact to mineral development.

Alternatives C, D & E (Preferred): The impacts would be the same as those in Alternative A.

From the Collar Gulch ACEC

Alternatives A (Current) & B: Collar Gulch would not be designated an ACEC and would not be withdrawn from mineral entry. This would allow hardrock mineral exploration and development to proceed as anticipated in the RFD scenario (see Appendix C). Hardrock mineral activity in this area would still be required to prevent unnecessary or undue degradation.

Alternative C: The ACEC designation in Collar Gulch would require a Plan of Operations for activities that could normally be conducted under a Notice. This would be a moderate negative impact to locatable mineral exploration and development. The management prescriptions for the Collar Gulch ACEC **could restrict** the location of mineral processing facilities that use chemicals which could be detrimental to the westslope cutthroat trout of Collar Gulch Creek. This could make individual mining operations infeasible by causing facility siting difficulties and/or increased haulage distances.

Alternative D: The withdrawal of this area from mining claim location would have a significant negative impact on hardrock mineral exploration and development. The RFD scenario predicts that one underground mining operation could be foregone in this area (see Appendix C).

Alternative E (Preferred): The impacts would be similar to those in Alternative A, except the presence of two wildlife species of special concern (westslope cutthroat trout and big eared bats) may have an undefined negative impact on mineral development.

From the Azure Cave ACEC

Alternative A (Current): The area surrounding the Azure Cave withdrawal would not be designated an ACEC, though the withdrawal would be maintained. Hardrock mineral development would proceed in the area as described in the RFD scenario (see Appendix C). Mine development in the Pony Gulch area could be negatively impacted by the Azure Cave withdrawal. The exact degree of impact is unknown at this time, but could be significant.

Alternative B: Revoking the withdrawal would facilitate mineral development in the Pony Gulch area; a positive impact to mineral development.

Alternatives C & D: The impacts would be similar to those in Alternative A, except the designation of an ACEC would require a Plan of Operations for activity that could normally be conducted under a Notice. This would be a negative impact to hardrock mineral activities.

Alternative E (Preferred): Azure Cave would be designated an ACEC, but the impacts would be the same as those in Alternative A since the area is currently withdrawn.

From the Big Bend of the Milk River ACEC

Alternatives A (Current) & B: Under this alternative the area would not be designated an ACEC and would remain open to mineral entry. There would be no impacts to hardrock mineral resource development.

Alternative C: The designation of an ACEC would require a Plan of Operations for activities that could normally be conducted under a Notice. This would be a minor negative impact to bentonite mineral activities.

Alternative D: The withdrawal of approximately 10,720 acres would have a significant negative impact on mineral resource development. Though the area has moderate, at best, potential for the occurrence of minable bentonite deposits, the size of this withdrawal could create a potentially significant impact.

Alternative E (Preferred): The designation of this area as an ACEC and withdrawing 2,120 acres to mineral entry and solid mineral leasing, would create minor negative impacts to the development of the minable bentonite resources.

IMPACTS TO AIR AND WATER QUALITY

From Land Acquisition and Disposal

Alternatives A (Current), B, C & D: This alternative could result in the conversion of approximately 68,069 BLM acres (41% of the 166,021 acres identified for disposal) from native prairie vegetation or crested wheatgrass to dryland farming. Dust would cause local short-term pollution, but would not significantly impact air quality.

There would be no impact to water quality.

Alternative E (Preferred): This alternative could result in the conversion of approximately 66,407 BLM acres (41% of the 161,968 acres identified for disposal) from native prairie vegetation or crested wheatgrass to dryland farming. Dust would cause local short-term pollution, but would not significantly impact air quality.

There would be no impact to water quality.

From Access to BLM Land

Alternatives A (Current), B, C, D & E (Preferred): No impact to air or water quality.

From Off-Road Vehicle Designations

Alternatives A (Current), B, C, D & E (Preferred): No impact to air or water quality.

From Oil and Gas Leasing and Development

Alternatives A (Current), B, C, D & E (Preferred): Air quality would be impacted in the immediate area of active wells where venting or flaring occurs but this would not be significant. H₂S gas could pose a potential hazard to workers and animals near stored crude oil or gas lines where accidental inhalation of toxic vapors could occur. Standard safety procedures minimize this risk.

Oil and gas development has the potential to impact the groundwater resources through cross contamination of aquifers or introduction of drilling fluids into the wellbore. Contaminates encountered in the wellbore could potentially impact surface waters. Onshore Oil and Gas Orders 1 and 2 provide regulations to operators and drillers which protect contamination of surface and ground waters. The orders require surface casing and cementing of the wellbore to prevent cross contamination of any fresh water aquifers. A cement bond log is also required to prevent migration of fluids and/or gasses and to ensure protection of all surface water. Drilling muds can not contain any hazardous materials. Surface disposal pits will be lined when the quality of produced water would degrade surface waters or shallow ground waters. Abandoned wellbores will be plugged to prevent migration of fluids and/or gasses.

From Hardrock Mining

Alternatives A (Current) & B: Dust from open pit mining would cause local pollution, but would not significantly impact air quality.

Surface and groundwater degradation is possible during and after mining operations. Suspended sediment is the major pollutant associated with exploration projects. Heavy metals, changes in pH, increases in total dissolved solids, nitrates and cyanide are the most common pollutants from actual mining operations (Table 4.6 shows the Environmental Protection Agency (EPA) recommended maximum allowable concentrations of various constituents associated with mining). Surface disturbing activities associated with mining could interrupt surface and encountered ground water flow paths. Mitigating measures are described in Chapter 2, under Management Common To All Alternatives.

Exploration projects usually result in short-term increases of suspended sediment in nearby surface water. The short term sedimentation would continue as long as the roads and drill pads are unreclaimed.

Impacts to groundwater could also occur from cross contamination of aquifers in exploration drill holes. Normal plugging procedures prevent this from occurring, however improperly plugged holes could allow cross contamination. Cross contamination is not likely to cause significant water quality degradation because most exploration drill holes are shallow (less than 500 feet deep) and most shallow aquifers in the mountainous regions are of similar quality.

TABLE 4.6
WATER QUALITY CRITERIA FOR CONSTITUENTS
NORMALLY ASSOCIATED
WITH HARD ROCK MINING ACTIVITIES

Constituent	Criteria
Arsenic	0.05 mg/l
Cadmium	0.01 mg/l
Chloride	250 mg/l
Chromium	0.05 mg/l
Copper	1.0 mg/l
Cyanide-Surface water (WAD)	0.22 mg/l
Cyanide-Groundwater (WAD)	0.22 mg/l
Dissolved Solids	500 mg/l
Iron	0.3 mg/l
Lead	0.05 mg/l
Magnesium	125 mg/l
Mercury	0.002 mg/l
Nickel	No criteria set
Nitrates, Nitrites (as N)	10 mg/l
pH	6.5 - 8.5
Selenium	0.01 mg/l
Silver	0.05 mg/l
Sodium	20 mg/l
Specific Conductivity	No criteria set
Sulfates	250 mg/l
Zinc	5.0 mg/l

Source: U.S. Environmental Protection Agency, 1976

State and federal regulations prohibit degradation of waters outside the mine permit boundary. However, spilled mine processing chemicals could enter the surface water and/or the groundwater system. This could cause water quality deterioration of variable duration, intensity and extent.

Almost all liners under heap leach operations, seep to some degree. Leaks are generally caused by angular pieces of ore puncturing the liner or the ore body shifting and tearing the liner. Most leaks are so small that impacts to waters flowing through the under drains beneath the liners exhibit no significant degradation of water quality. All heap leach operations have monitoring wells to detect any significant leaks of process solutions and they are checked on a regular basis.

Since 1988, all cyanide leach operations must have a land application area identified in case excess process solution needs disposal. Disposal would generally occur only during extreme or prolonged precipitation events or at the end of

the life of the mine. Disposal of neutralized process solution has occurred in the planning area three times in the last four years. All disposal events were successful and no degradation to surface or groundwater occurred.

The chance of mass failure of the dikes supporting valley fill heap leaches is always present as long as these facilities exist. The two most probable causes of a mass failure are earthquakes and extreme precipitation events. Should a mass failure of a dike occur, the impacts to both surface and groundwater, in that particular drainage, could be irreversible and irretrievable. Two pads have been permitted in the Landusky operations which, when fully loaded with ore, will exceed in volume any valley fill leach pads known to exist in the industry. Engineering studies indicate this extreme amount of ore (40 and 50 million tons each) will not impact liner or the dike stability. Liner integrity and dike stability are monitored closely to detect any irregularities.

If state and federal regulations are followed, no significant water quality degradation should occur, under normal operating conditions. All cyanide facilities are designed to contain a 100 year precipitation event in addition to their normal operating solution levels. As long as operating conditions remain normal, water quality degradation is minimized. When normal conditions are exceeded, the potential for surface and groundwater contamination is increased. As the number of active mine sites increases, the risk of experiencing abnormal operating conditions and water quality degradation also increases.

The potential for water quality degradation from underground mining generally occurs as an increase in nitrates from blasting or acid mine drainage resulting from increased oxidation rates. Mitigation requires reclamation of abandoned underground mining operations. Water quality degradation can result from unreclaimed underground operations.

Alternative C: Impacts would be similar to those of Alternative A, except that revoking the withdrawals in the Little Rocky Mountains would potentially increase the risk of water contamination.

Alternative D: Impacts would be similar to Alternative A, except suspended sediments from exploration activities in surface waters could be reduced approximately 50% because only half of the projected exploration projects may occur. All other types of impacts to water quality would be similarly reduced.

Alternative E (Preferred): Impacts would be similar to those in Alternative A, except revoking the Judith Peak Red Mountain, Landusky Town Site, Landusky Recreation Site and Zortman Town Site withdrawals would increase the potential acreage disturbed by mining and the risk of water contamination. A withdrawal for the Big Bend of the Milk River ACEC would offset this somewhat.

From Riparian and Wetland Management of Watersheds

Alternatives A (Current), B, C, D & E (Preferred):

There would be no impact to air quality. Water quality would improve to varying degrees in all alternatives as a result of increased streambank vegetation and reduced erosion. Riparian-wetland areas act as sponges to hold water in streambanks and release water slowly, increasing the duration of water flow. Ground water supplies are enhanced by increased water reaching the aquifers. Flood waters will be dispersed to the floodplains by increased streambank vegetation and filling of stream channels.

From Elk and Bighorn Sheep Habitat Management

Alternatives A (Current), B, C, D & E (Preferred): No impact to air or water quality.

From Prairie Dog and Black-Footed Ferret Management

Alternatives A (Current), B, C, D & E (Preferred): No impact to air or water quality.

From the Judith Mountains Scenic Area ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to air or water quality.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to air or water quality.

From the Square Butte ONA ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to air or water quality.

From the Collar Gulch ACEC

Alternatives A (Current) & B: Potential mining in Collar Gulch could contaminate surface and groundwater. The impacts would be similar to those discussed under the Impacts to Air and Water Quality from Hardrock Mining Section.

Alternatives C & D: There could be a positive impact to water quality from management prescriptions addressing the present stream contamination problems.

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From the Azure Cave ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to air or water quality.

From the Big Bend of the Milk River ACEC

Alternatives A (Current), B, C, D, & E (Preferred): No impact to air or water quality.

IMPACTS TO SOIL AND VEGETATION

From Land Acquisition and Disposal

Alternatives A (Current), B, C, D & E (Preferred): Approximately 41% of the BLM acres identified for disposal could be converted to small grain production. There would be a minor increase in soil erosion, assuming conservation practices are applied in compliance with SCS conservation plans. There is also the risk of negligent farming practices on highly erodible soils which would result in significant erosion. According to the SCS, highly erodible land can erode at up to eight times the normal soil loss tolerance level with the wrong farming practices. Average small grain production of the farmed lands is expected to be 20 bushels per acre, on an every other year basis under a crop-fallow rotation, i.e., 10 bushels per year.

Potential land use changes which could negatively impact soil and vegetation would be largely avoided on acquired land.

From Access to BLM Land

Alternative A (Current): There would be a slight risk of erosion from new or improved roads and off-road vehicle travel could damage vegetation. The risk of spreading noxious plants would increase slightly, due to increased use of the area by the public.

Alternative B: No impact to soil or vegetation.

Alternative C: This alternative would provide public access to 71,793 additional acres. No significant impacts would be expected from increased use by the public. The risk of noxious plant infestation would increase slightly, due to increased use of the area by the public.

Alternative D: There would be a slight risk of soil erosion from increased use of roads and trails, and new or improved roads. Also, the risk of noxious plant infestations would increase slightly. No significant impacts would be expected to soil or vegetation.

Alternative E (Preferred): Impacts would be similar to those in Alternative D, except that off-road vehicle travel would not be restricted in much of the area identified for access. This could cause increased off-road vehicle travel, resulting in damaged vegetation and local soil erosion.

From Off-Road Vehicle Designations

Alternative A (Current): ORV use is expected to increase, causing soil erosion due to destruction of vegetation. In most cases, this erosion would not represent a significant loss of soil, however gullies could be caused by vehicle traffic on steep slopes, especially in the Breaks area and other sedimentary soils. These gullies could result in locally significant soil loss in the immediate area.

Impacts to vegetation in the areas open to ORVs would range from minor destruction of annual forage production to long-term (greater than 15 years to recover) loss of productivity. The degree of vegetation loss is not expected to be significant. Most of the vegetation loss would not be permanent, but would be a flattening of annual growth, making the forage unavailable to grazing animals. This problem has increased in recent years. If current trends continue, destruction of vegetation could become locally significant in the most popular hunting areas. The potential for introducing noxious plants from seeds carried by ORVs would remain high.

Alternative B: The impacts would be similar to Alternative A, except the potential for introducing noxious plants from seeds carried by ORVs would increase slightly.

Alternative C: Restricting ORV use on 862,709 acres would benefit the areas receiving most of the off-road travel activity. Destruction of vegetation and creating new trails would be curtailed. Yearlong restrictions on 121,206 acres and closing 3,805 acres would protect soils and vegetation from potential damage.

ORV use is expected to continue to increase on the areas open to ORV use, causing increased soil erosion due to destruction of vegetation. Overall, erosion would not represent a significant loss of soil, since the most popular hunting areas and highest erosion potential areas would have ORV limitations. However, gullies could be caused by vehicle traffic on steep slopes. These gullies could result in locally significant soil loss in the immediate area.

The potential for introducing noxious plants from seeds carried by ORVs would be reduced.

Alternative D: ORV use would be limited or closed throughout the planning area. This would result in the recovery of locally impacted areas and prevent further degradation of the soil and vegetation. The risk of noxious plant infestations would be reduced.

Alternative E (Preferred): ORV seasonal restrictions on 656,296 acres, primarily in the Missouri Breaks, would benefit the areas receiving most of the hunting off-road vehicle travel activity. Destruction of vegetation and creating new trails would be curtailed. Yearlong restrictions on 157,413 acres and closing 1,947 acres would protect soil and vegetation from potential damage.

ORV use is expected to continue increasing on the areas open to ORV use, causing increased soil erosion due to destruction of vegetation. Overall, erosion would not represent a significant loss of soil, however, small gullies could be caused by vehicle traffic on steep slopes. These gullies could result in locally significant soil loss in the immediate area. The potential for introducing noxious plants from seeds carried by ORVs would be reduced.

The impacts to vegetation in the areas open to ORV use would range from minor destruction of annual forage production to long-term (greater than 15 years to recover) loss of productivity. The risk of serious damage is quite low in the open areas as recreation use is generally dispersed and soils are relatively stable, compared to the limited and closed areas.

The Frenchman Creek and Cottonwood Creek areas in Phillips County and the Willow Creek area in Valley County are erosive areas that would remain open to ORV use. If current trends in hunting use and pressure continue, destruction of vegetation could become locally significant in these areas.

From Oil & Gas Leasing and Development

Alternative A (Current): Soil on the immediate site of well pads would be subject to insignificant, short-term erosion, with reclamation restoring protective ground cover within 2 to 4 years. There would be the potential for local soil contamination from oil leaks or spills at the few anticipated oil exploration wells.

New roads and pipelines would create short-term (less than 5 years) vegetation losses and a low potential for increased soil erosion because of design standards which minimize erosion and require revegetation of disturbed areas. Reclaimed sites may be more productive than adjacent undisturbed areas for several years due to the increased water infiltration and fertilization resulting from tillage.

Alternative B: There would be a potential for increased soil erosion on slopes greater than 30% and a greater

amount of disturbance during exploration activities. Other impacts would be similar to those in Alternative A.

Alternative C, D & E (Preferred): Impacts would be similar to those in Alternative A, except that greater protection would be provided soils on slopes greater than 30% and for floodplain and riparian areas. This would reduce potential adverse impacts, soil erosion from disturbance on steep slopes and water contamination from pollutant runoff into streams and rivers; all positive impacts.

From Hardrock Mining

Alternatives A (Current) & B: Projected exploration and mining could disturb 1,430 acres (see Table 4.7). Soils and subsoils would be disturbed by exploration and mining activities including road building, open-pit mining and heap leaching. Reclamation would stabilize soils and revegetate this acreage, but revegetation may take years.

TABLE 4.7
PROJECTED EXPLORATION AND MINING
DISTURBANCE ON BLM LAND (ACRES)

Mountain Range	ALTERNATIVE				
	A	B	C	D	E
EXPLORATION					
Little Rockies	200	200	200	120	200
Judiths	200	200	150	35	150
North and South					
Moccasins	100	100	100	50	100
Little Belts	50	50	50	50	50
Total	550	550	500	255	500
MINING					
Little Rockies	730	730	730	690	730
Judith	100	100	70	10	70
North and South					
Moccasins	40	40	20	20	20
Little Belts	10	10	10	10	10
Total	880	880	830	730	830
Total Exploration and Mining	1,430	1,430	1,330	985	1,330

Source: BLM, 1990

Alternative C: Projected exploration and mining could disturb 1,330 acres (see Table 4.7). Reclamation would revegetate this acreage as described in Alternative A.

Alternative D: Projected exploration and mining could disturb 985 acres (see Table 4.7). Reclamation would revegetate this acreage as described in Alternative A.

Alternative E (Preferred): Projected exploration and mining could disturb 1,330 acres (see Table 4.7). Reclamation would revegetate this acreage as described in Alternative A.

From Riparian and Wetland Management of Watersheds

Alternative A (Current): This alternative would involve 192 existing AMPs and 78 proposed AMPs. This includes 83% of the stream riparian areas, 64% of the natural and man-made water sources and 71% of the BLM land comprising watersheds.

Implementation and/or continuation of grazing management practices which control the time livestock can spend on a given area, provide rest and deferment to the plants, improve livestock distribution, limit hot season use of riparian areas and increase vegetation production would bring about improvement in streambank stability and result in succession to desired plant communities, primarily late seral to PNC seral stages. Overall, 199 miles of stream (4,776 acres) are in less than proper functioning condition and would improve to proper functioning condition while 299 miles of stream (7,176 acres) would be maintained in proper functioning condition. This improvement may be as rapid as 3 to 5 years. Changes in woody vegetation seral stages would be much slower. For cottonwood and streambank willow community types, which are very common, the desired plant community will likely be early or mid seral in most cases. Achieving the desired plant community may take more than 20 years depending on the condition of the zone, potential for improvement, natural plant community, grazing management practices applied and site factors that limit opportunity for improvement.

Site factors including noxious plants, natural erosion and the influence of man-made water control structures limit the potential for improvement in many cases. Leafy spurge and knapweeds are noxious plants which limit improvement in riparian areas in several drainages in the planning area.

As stream riparian areas improve, perennial plants that absorb the erosive impact of the stream would fill barren areas and replace annual or shallow rooted species. Grasses and grass-like plants including western wheatgrass, slender wheatgrass, Canada wildrye, prairie cordgrass, Nuttall alkaligrass, Nebraska sedge, baltic rush and common cattail would replace bare ground, and such low value species as cocklebur and foxtail barley on the inner banks of streams. This vegetation slows the flow of water and captures sediment which provides an environment for establishing willows and cottonwoods within the streambank. Vegetation on overflow range sites adjacent to the creeks would become dominated by productive grasses and such shrubs and trees as rose, snowberry, buffaloberry, boxelder and green ash. Establishing vegetation would stabilize 199 miles of eroding stream banks.

Vegetation for livestock and wildlife would increase dramatically as range sites improve from fair (mid seral) to good (late seral) and excellent condition (PNC). Current vegetation production on the 11,952 acres of riparian area is equivalent to approximately 11,750 AUMs; 7,050 of these AUMs are allocated to wildlife and watershed and 4,700 to livestock. Total production would increase by about 3,250 AUMs as ecological condition improves. Of this increase, 1,625 AUMs would be allocated to livestock and 1,625 AUMs would go to watershed and wildlife.

This alternative involves 4,118 water sources in the form of man-made reservoirs and natural potholes. Approximately 3,474 of these are currently within AMPs which provide deferment and/or rest which allows for the development of emergent vegetation and increased production of adjacent vegetation. Some of the highest quality wetlands are currently fenced to exclude livestock.

An estimated 400 to 500 additional reservoirs would be needed to implement intensive grazing management on the 553,087 acres of proposed AMPs. A minimum of 1,044 additional reservoirs and potholes would receive rest and deferment or exclusion from grazing, resulting in increased shoreline and emergent vegetation.

Riparian and wetland management would include the entire affected watershed. As an example, improved management of uplands would occur as an integral part of riparian and wetland management. The Missouri Breaks Grazing and Prairie Potholes Vegetation EISs projected substantial improvement in ecological condition, increased watershed cover and increases in available forage. Based on projections made in these EISs, the total available vegetation could increase by approximately 10% (82,500 AUMs) of which 33,000 would be allocated to livestock and 49,500 to wildlife and watershed. This includes the AUMs from riparian and wetland management.

Alternative B: This alternative would involve 192 existing AMPs which includes 61% of the stream riparian areas, 54% of the natural and man-made water sources and 52% of the BLM land comprising watersheds.

Overall, 147 miles of stream (3,500 acres) in less than proper functioning condition and in fair condition (mid seral) would improve to proper functioning condition with desired plant communities while 221 miles of stream (5,300 acres) would be maintained in proper functioning condition with desired plant communities, resulting in stabilization of 147 miles of eroding stream banks.

Current vegetation production on the 8,830 acres of riparian area is equivalent to approximately 8,610 AUMs; 5,170 of these AUMs are allocated to wildlife and watershed and 3,440 AUMs are allocated to livestock. Total production would increase by about 2,420 AUMs as ecological condition improves. Of this increase, 1,210 AUMs would be allocated to livestock and 1,210 to watershed and wildlife.

This alternative involves 3,480 water sources in the form of man-made reservoirs and natural potholes. All of these are currently within AMPs which provide deferment and/or rest which allows for the development of emergent vegetation and increased production of adjacent riparian vegetation. An estimated 100 to 200 additional reservoirs would be needed to implement intensive grazing management. At least 100 additional reservoirs and potholes would receive rest and deferment or exclusion from grazing, resulting in minimal increased shoreline and emergent vegetation.

A total of 1,507,379 acres of BLM land would be under management designed to create substantial improvement in ecological condition and increased watershed cover. The total available vegetation could increase by approximately 10% (58,750 AUMs) of which 23,500 would be allocated to livestock and 35,250 to wildlife and watershed. This includes the AUMs from riparian and wetland management. Reductions in livestock allocations may be needed in some allotments to accomplish the improvements desired. The projected increase takes any such reductions into account.

Alternative C: This alternative would involve 192 existing AMPs, 78 proposed AMPs and 151 potential AMPs which includes 85% of the stream riparian areas, 66% of the natural and man-made water sources and 85% of the BLM land comprising the watersheds.

Overall, 206 miles of stream (4,950 acres) in less than proper functioning condition would improve to proper functioning condition with desired plant communities while 308 miles of stream (7,400 acres) would be maintained in proper functioning condition and maintained or improved to reach the desired plant community, stabilizing 206 miles of eroding stream banks.

Current vegetation production on the 12,350 acres of riparian area is equivalent to approximately 12,027 AUMs; 7,216 of these are allocated to wildlife and watershed and 4,811 AUMs are allocated to livestock. Total production would increase by about 3,400 AUMs as ecological condition improves. Of this increase 850 AUMs would be allocated to livestock and 2,550 allocated to watershed and wildlife.

This alternative involves 5,910 water sources in the form of man-made reservoirs and natural potholes. Of these 3,474 are currently within AMPs which provide deferment and/or rest which allows for the development of emergent vegetation and increased production of adjacent vegetation. The remaining 2,436 water sources are in allotments not under AMPs. An estimated 500 to 800 additional reservoirs would be needed to implement intensive grazing management in these allotments. At least 2,936 additional reservoirs and potholes would receive rest and deferment or exclusion from grazing in this alternative, resulting in increased shoreline and emergent vegetation.

A total of 2,451,765 BLM acres would be managed to improve ecological condition and increase watershed cover.

In the affected allotments, total available vegetation could increase by approximately 10% (95,750 AUMs) of which 38,300 would be allocated to livestock and 57,450 to wildlife and watershed. This includes the AUMs from riparian and wetland management.

Alternative D: This alternative would involve 100% of the stream riparian areas, 100% of the natural and man-made water sources and 91% of the BLM land comprising watersheds.

Overall, 240 miles of stream (5,760 acres) in less than proper functioning condition would improve to proper functioning condition with desired plant communities while 360 miles of stream (8,640 acres) would be maintained in proper functioning condition and maintained or improved to reach the desired plant communities, stabilizing 360 miles of eroding stream banks.

Current vegetation production on the 14,400 acres of riparian area is equivalent to approximately 14,040 AUMs; 8,424 of these AUMs are allocated to wildlife and watershed and 5,616 to livestock. Total production would increase by about 3,960 AUMs as ecological condition improves. AUMs would be allocated 100% to watershed and wildlife.

This alternative involves 6,387 water sources in the form of man-made reservoirs and natural potholes. Approximately 3,474 of these are currently within AMPs which provide deferment and/or rest which allows for the development of emergent vegetation and increased production of adjacent vegetation. The remaining 2,913 are not in AMPs. An estimated 500 to 1,000 additional reservoirs or other water sources would be needed to implement intensive grazing management on the 447 new AMPs. A minimum of 3,413 additional reservoirs and potholes would receive rest and deferment or exclusion from grazing, resulting in increased shoreline and emergent vegetation.

A total of 2,858,469 BLM acres would have substantial improvement in ecological condition and increased watershed cover. Total available vegetation would increase by approximately 10% (103,000 AUMs) of which 100% would be allocated to wildlife and watershed. This includes the AUMs from riparian and wetland management.

Alternative E (Preferred): This alternative would involve 159 existing AMPs, 55 proposed AMPs, 85 potential AMPs and 49 non-AMP areas and includes 99% of the stream riparian areas, 92% of the natural and man-made water sources and 85% of the BLM land comprising the watersheds.

Overall, 238 miles of stream (5,714 acres) in less than proper functioning condition would improve to proper functioning condition while 357 miles of stream (8,568 acres) would be maintained in proper functioning condition and maintained or improved to reach desired plant communities, stabilizing 238 miles of eroding stream banks.

Current vegetation production of the 14,282 acres of riparian area is equivalent to approximately 13,930 AUMs; 8,360 of these AUMs are allocated to wildlife and watershed and 5,570 to livestock. Total production would increase by about 3,780 AUMs as ecological condition improves AUMs which would be allocated to watershed, wildlife and livestock on a case-by-case basis.

This alternative involves 5,850 water sources in the form of man-made reservoirs and natural potholes. Approximately 3,386 of these are currently within AMPs which provide deferment and/or rest which allows for the development of emergent vegetation and increased production of adjacent vegetation. The remaining 2,464 water sources are in the proposed, potential and non-AMPs. An estimated 450 to 700 additional reservoirs would be needed to implement intensive grazing management on these allotments. A minimum of 2,914 additional reservoirs and potholes would receive rest and deferment or exclusion from grazing in this alternative, resulting in increased shoreline and emergent vegetation.

A total of 2,377,161 BLM acres would have grazing management practices which would result in substantial improvement in ecological condition and increased watershed cover. In the affected allotments, total available vegetation would increase by approximately 10% (equivalent to 92,860 AUMs). This includes the AUMs from riparian and wetland management. Vegetation allocations would be made on a case-by-case basis.

From Elk and Bighorn Sheep Habitat Management

Alternatives A (Current), B, C, D & E (Preferred): The elk and bighorn sheep habitat areas are in good (late seral) to excellent (PNC) ecological condition and would remain so. There would be no impact to soil or vegetation.

From Prairie Dog and Black-Footed Ferret Management

Alternative A (Current): Eliminating 10,013 acres of prairie dog towns and emphasizing vegetation management would increase vegetation cover, reduce erosion and improve ecological condition from poor (early seral) to fair (mid seral) or good condition (late seral).

The 3,308 acres of prairie dog towns managed for ferret reintroduction would remain in poor ecological condition (early seral). Excluding livestock grazing around the prairie dog towns would increase vegetative cover. Cattle tend to utilize the scant forage on the towns in preference to adjacent areas, possibly due to increased palatability caused by the fertilizing effect of prairie dog activity.

Alternative B: Eliminating 6,859 acres of prairie dog towns and emphasizing vegetation management would moderately increase vegetation cover, reduce erosion and improve ecological condition from poor (early seral) to fair (mid seral) or good condition (late seral).

The 6,462 acres of prairie dog towns managed for ferret reintroduction would remain in poor ecological condition (early seral).

Alternative C: Eliminating 1,330 acres of prairie dog towns and emphasizing vegetation management would negligibly increase vegetation cover, reduce erosion and improve ecological condition from poor (early seral) to fair (mid seral) or good condition (late seral).

The 7,367 acres of prairie dog towns managed for ferret reintroduction and the 4,624 acres managed for prairie dog shooting would remain in poor ecological condition (early seral).

Excluding livestock grazing around the prairie dog towns managed for ferret reintroduction would increase vegetative cover. Cattle tend to utilize the scant forage on the towns in preference to adjacent areas, possibly due to increased palatability caused by the fertilizing impact of prairie dog activity.

Alternative D: This alternative would allow prairie dogs to expand by 8,885 acres in the Phillips RA; 4,200 acres in the Valley RA; and 4,929 acres in the Judith RA. Potentially, this could result in 18,014 acres of additional prairie dog towns and a corresponding decline in ecological condition and increased erosion.

The 12,105 acres of prairie dog towns managed for ferret reintroduction would remain in poor ecological condition (early seral).

Alternative E (Preferred): The 26,000 acres of prairie dog towns cooperatively maintained and managed for ferret reintroduction (12,346 BLM, 5,800 CMR, 2,012 DSL, 5,821 private) would remain in poor ecological condition (early seral).

From the Judith Mountains Scenic Area ACEC

Alternatives A (Current) & B: Exploration and mining could disturb soils and subsoils through road building, open-pit mining and heap leaching; a negative impact. Reclamation would stabilize soils and revegetate disturbances, but revegetation may take years.

Alternatives C & D: Limiting surface disturbing activities on 4,566 acres would maintain natural vegetation. Careful design and reclamation practices would return natural vegetation to disturbed areas.

Alternative E (Preferred): Limiting surface disturbing activities on 3,702 acres would maintain natural vegetation. Careful design and reclamation practices would return natural vegetation to disturbed areas.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B & C: No impact to soil or vegetation.

Alternative D: Protection from mining claim location would reduce the risk of site disturbance on 3,619 acres plus any land acquired and added to the ACEC. The War Horse tract (817 acres) would be closed to ORV and livestock use, which would increase ground cover.

Alternative E (Preferred): Yearlong ORV restrictions on 2,463 acres would ensure no impact to soil or vegetation, but would have no immediate benefit as little off-road travel is occurring. Timber harvest would be prohibited, unless necessary for stand preservation. This would result in no appreciable change, as the timber on the site is of very low value and little demand exists for harvest.

From the Square Butte ONA ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to soil or vegetation.

From the Collar Gulch ACEC

Alternatives A (Current) & B: There would be the potential for mining activity in the Collar Gulch area. Mining could adversely impact vegetation and soil resources. ORV use would remain limited to slopes greater than 30% which could result in future damage to soil and vegetation.

Alternative C: This alternative would prevent potential soil and vegetation damage caused by surface disturbing activities. The 1,160 acre area would be undisturbed. There would be additional public access, which could result in increased off-road travel during the spring and summer.

Alternative D: This alternative would protect the area from mining and ORV use; preventing damage to soil and vegetation.

Alternative E (Preferred): There would be the potential for mining activity in the Collar Gulch area. Mining could adversely impact vegetation and soil resources.

From the Azure Cave ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to soil or vegetation.

From the Big Bend of the Milk River ACEC

Alternatives A (Current) & B: No impact to soil or vegetation.

Alternative C: ACEC designation would reduce soil and vegetation disturbance from mineral activities or other uses in the 2,120 acre area. This would not be significant to the soil and vegetation resource.

Alternative D: Withdrawing 10,720 acres would prevent soil and vegetation disturbance from mineral activities. This would not be significant to the soil and vegetation resource, because reclamation is very successful due to the productive nature of the soils in the area.

Alternative E (Preferred): Withdrawing 2,120 acres would prevent soil and vegetation disturbance from mineral activities or other uses. This would not be significant to the soil and vegetation resource, since anticipated disturbing activities would not have a significant long-term impact on soil and vegetation.

IMPACTS TO LIVESTOCK GRAZING MANAGEMENT

From Land Acquisition and Disposal

Alternatives A (Current), B, C & D: Approximately 41% of the 166,021 acres identified for disposal could be converted to small grain production. Livestock grazing could continue on the 97,982 acres that may not be farmed. Major changes in grazing management practices and stocking levels would not be expected as a result of transfer to private or state ownership because the disposal tracts are primarily in allotments where BLM management is custodial. Forage availability on the 68,089 acres which may be farmed could be reduced from an average of 5.5 acres/AUM to 10 acres/AUM because forage is only available on the stubble (SCS recommendation, Dennis Phillippi personal communication, 1990). The loss in forage availability, if grazing land is converted to farmland, would be approximately 5,570 AUMs.

Based on livestock forage allocations made on acquired lands in the past ten years in the planning area, allocations of livestock forage on acquired lands (estimated 115,000 acres) would be reduced by 17%. Past allocations made on lands acquired for a range of purposes; administrative, recreational and wildlife habitat have averaged 17% less than private land rates. Overall, livestock forage allocations could be reduced by 3,555 AUMs compared to current levels on private lands. This assumes 115,000 acres of acquired lands with an average livestock grazing capacity as private land of 5.5 AUMs/acre and an average livestock

forage allocation of 83% of private land rates. The total estimated reduction of 9,125 AUMs (5,570 + 3,555) represents a reduction in cow numbers of 760 head, or a loss of seasonal six-month pasture for 1,520 head.

Disposal of isolated BLM land would improve BLM grazing administration efficiency; about 300 small allotments would be eliminated. BLM has little management control on these scattered tracts due to the preponderance of private land associated with these allotments. Management efficiency would be improved where lands were acquired in larger allotments; BLM would have greater control of grazing practices and construction of improvements.

An estimated \$5.00 per acre (total \$100,000) could be spent by BLM to construct various improvements to implement multiple-use management on the acquired land. These improvements would enhance wildlife habitat, recreation use and facilitate improved grazing management. Management costs for ranchers may increase on acquired land, however the costs would generally be offset by improved livestock productivity, as more intensive management yields greater livestock gains due to improved conception rates, higher weaning weights and higher daily gains.

Alternative E (Preferred): The impacts would be similar to Alternative A, except 66,407 acres of the 161,968 BLM acres identified for disposal could be converted to small grain production.

From Access to BLM Land

Alternatives A (Current), B, C, D & E (Preferred): No impact to livestock grazing management.

From Off-Road Vehicle Designations

Alternatives A (Current) & B: Impacts to livestock forage production and use from off-road travel are not significant. However, there is forage damage in some of the most popular hunting areas where the planned grazing is in the late fall and winter. These areas often involve substantial private land with intermingled BLM land. Significant forage loss, requiring reductions in livestock grazing or major changes in livestock operations, is not occurring and is not expected to occur. Ranchers are concerned with the disturbance of livestock during the hunting season, primarily by ORVs. This would not change in this alternative.

Alternative C & D: ORV restrictions in the most popular hunting areas would eliminate the concern by ranchers relative to forage loss and livestock disturbance. Livestock operators would be required to have permission from the authorized officer to travel off-road for fence maintenance, checking livestock and moving livestock in the limited

areas. If they could get permission routinely, there would be no impact to grazing management.

Alternative E (Preferred): The impacts would be similar to those in Alternative C, except ranchers in the Cottonwood and Frenchman Creek areas would continue to be concerned with forage loss and livestock disturbance from ORV use.

From Oil and Gas Leasing and Development

Alternatives A (Current), B, C, D & E (Preferred): No impact to livestock grazing management.

From Hardrock Mining

Alternatives A (Current), B & C: Livestock grazing could be affected in the North and South Moccasin, Little Belt and portions of the Judith Mountains. This would not result in a significant loss of forage, as the mining areas are steep and of low productivity. Much of the potential mining area in the Little Rocky and Judith Mountains is not allocated for livestock grazing.

Alternatives D: No impacts to livestock grazing management.

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From Riparian and Wetland Management of Watersheds

Alternative A (Current): Vegetation for livestock would increase dramatically as range sites improve from fair (mid seral) to good (late seral) and excellent (PNC) condition. Total production would increase by about 82,500 AUMs as ecological condition improves. Of this increase, 33,000 AUMs would be allocated to livestock. Reduced livestock allocations may be needed to improve riparian-wetland areas in some allotments.

Management costs would increase for those ranchers required to maintain additional fences, move livestock more frequently and monitor forage more carefully. In most cases, these costs would be offset by improved livestock productivity as more intensive management yields greater livestock gains due to improved conception rates, higher weaning weights and higher daily gains. However, many permittees whose allotments are in AMPs would not experience a major change in their ranch operations and would not experience major increases in livestock productivity.

Construction costs for implementing and revising AMPs (water developments, enclosure fences, and land treatments)

would total approximately \$7.1 million; \$5.8 million BLM cost and \$1.3 million permittee cost.

Alternative B: Total production would increase by about 58,750 AUMs as ecological condition improves. Of this increase, 23,500 AUMs would be allocated to livestock. Reduced livestock allocations may be needed to improve riparian-wetland areas in some allotments.

Affected permittees would experience some increase in operating expenses to maintain additional fences and other range developments. Because these allotments are already in AMPs, a major change in ranch operations would not result. Since these ranch operations are already receiving the livestock production benefits of intensive grazing management, there would be little economic benefit from the riparian and wetland management practices to the permittees.

Construction costs for implementing and revising AMPs (water developments, enclosure fences, and land treatments) would total \$3.8 million; \$3 million BLM cost and \$.8 million permittee cost.

Alternative C: Total production would increase by about 95,750 AUMs as ecological condition improves. Of this increase, 38,300 AUMs would be allocated to livestock. Reduced livestock allocations may be needed to improve riparian-wetland areas in some allotments.

In most cases, increased management costs for affected ranchers would be offset by improved livestock productivity.

Construction costs for implementing and revising AMPs (water developments, enclosure fences, and land treatments) would total approximately \$10.2 million; \$7.7 million BLM cost and \$2.5 million permittee cost.

Alternative D: Total production would increase by about 103,000 AUMs as ecological condition improves, however none of the increase would be allocated to livestock. Reduced livestock allocations may be needed to improve riparian-wetland areas in some allotments.

In most cases, increased management costs for affected ranchers would be offset by improved livestock productivity.

Construction costs for implementing and revising AMPs (water developments, enclosure fences and land treatments) would total approximately \$12.1 million; \$9.0 million BLM cost and \$3.1 million permittee cost.

Alternative E (Preferred): Vegetation production would increase by about 92,860 AUMs as ecological condition improves and these additional AUMs would be allocated to livestock on a case-by-case basis. Reduced livestock allocations may be needed to improve riparian-wetland areas in some allotments.

In most cases, increased management costs for affected ranchers would be offset by improved livestock productivity.

Construction costs for implementing and revising AMPs (water developments, enclosure fences and land treatments) would total approximately \$9.6 million; \$7.4 million BLM cost and \$2.2 million permittee cost.

From Elk and Bighorn Sheep Habitat Management

Alternatives A (Current) & B: No impact to livestock grazing management.

Alternative C: The forage on BLM land would not limit elk expansion in the Judith Mountains, Square Butte, the North Moccasins, and Big and Little Snowy Mountains. The tolerance of adjacent private landowners to crop depredation would be the limiting factor.

Domestic sheep grazing would not be allowed to overlap bighorn sheep habitat. Currently there is no sheep grazing authorized in the current or projected bighorn sheep habitat, so there would be no impact to grazing operations, except to limit the future option of converting to sheep.

Alternatives D & E (Preferred): Currently, forage is not limiting elk expansion and substantial population increases could occur before forage would become a limiting factor. The MDFWP has found rest-rotation grazing of cattle can be beneficial to elk (Frisina, personal communication). The elk habitat is primarily in existing AMPs or proposed AMPs where grazing management can benefit elk.

Domestic sheep grazing would not be allowed to overlap bighorn sheep habitat. Currently there is no sheep grazing authorized in the current or projected bighorn sheep habitat, so there would be no impact to grazing operations, except to limit the future option of converting to sheep.

From Prairie Dog and Black-Footed Ferret Management

Alternative A (Current): Livestock grazing would be excluded from 19 prairie dog towns and 1/4-mile around those towns (a total of 10,680 acres) resulting in a reduction of about 1,940 livestock AUMs. Land treatments outside the exclusion areas would increase forage, but 19,000 acres would have to be chisel-plowed to replace the 1,940 AUMs. Assuming soils are suitable in the affected allotments, there would be no long-term loss in livestock forage. There would be short-term losses while chiseling is completed and established. For the purposes of this analysis, it is assumed that the 1,940 AUMs would be lost for a period of 5 years and then would be replaced.

Alternative B: No impact to livestock grazing management.

Alternative C: Livestock grazing would be excluded from the core towns managed for ferret reintroduction and 1/4-mile around those towns (a total of 4,480 acres) resulting in a reduction of about 815 livestock AUMs. Land treatments outside the exclusion areas would increase forage, but 8,000 acres would have to be chisel-plowed to replace the 815 AUMs. Assuming soils are suitable in the affected allotments, there would be no long-term loss in livestock forage. There would be short-term losses while chiseling is completed and established. It's assumed the 815 AUMs would be lost for a period of 5 years and then would be replaced.

Alternative D: Prairie dogs would be allowed to expand on 18,014 BLM acres. However, expansion would be limited to no more than 10% of the BLM portion of any allotment, and the change in AUMs may not be significant enough (approximately 6.5%) to require a reduction in livestock grazing. The ecological condition of each allotment, combined with the current acreage of prairie-dog towns in each allotment would be the primary factors to determine if a livestock grazing reduction would be necessary. Also, mechanical treatments would be applied where necessary on suitable soils off-site, to compensate for decreased forage. Since the expansion would be gradual, mechanical treatments could be completed as needed to result in no net loss or short-term loss in livestock forage. As a worst case scenario, up to 20,000 acres would need to be chisel plowed to replace 100% of the AUMs lost by prairie dog expansion. There is a low probability that prairie dog towns would expand to 5,000 acres over the next 10 to 15 years in the Valley and Judith RAs based on observations of the few towns that exist there.

Livestock grazing would be excluded from the core towns, an area of 6,080 acres, resulting in a reduction of about 1,105 livestock AUMs. Land treatments outside the exclusion areas would increase forage, but 11,000 acres would have to be chisel-plowed to replace the 1,105 AUMs. Assuming soils are suitable in the affected allotments, there would be no long-term loss in livestock forage. There would be short-term losses while chiseling is completed and established. For the purposes of this analysis, it is assumed that the 1,105 AUMs would be lost for a period of 5 years and then would be replaced.

Alternative E (Preferred): Prairie dog acreage would be managed at current levels and no change in livestock AUMs, would be made. There would be no impact to livestock grazing management.

From the Judith Mountains Scenic ACEC

Alternatives A, B, C, D & E (Preferred): No impact to livestock grazing management.

From the Acid Shale-Pine Forest ACEC

Alternatives A, B & C: No impact to livestock grazing management.

Alternative D: Little livestock use occurs on the site due to very low site productivity and timber cover. Approximately 100 AUMs are currently authorized on this tract. These AUMs would be lost to the two affected permittees.

Alternative E (Preferred): No impact to livestock grazing management.

From the Square Butte ONA ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to livestock grazing management.

From the Collar Gulch ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to livestock grazing management.

From the Azure Cave ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to livestock grazing management.

From the Big Bend of the Milk River ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to livestock grazing management.

IMPACTS TO WILDLIFE

From Land Acquisition and Disposal

Alternatives A (Current), B, C & D: Disposing of 166,021 acres would decrease or destroy some yearlong wildlife habitat on 68,069 acres which could be farmed. However, many of these parcels are isolated crested wheatgrass pastures surrounded by farmland with very low wildlife values. Most of the 97,952 acres of non-farmable disposal parcels are in mountainous terrain or steep and rough breaks and the wildlife values would not change.

Land acquisitions that include habitat for T&E species, crucial winter range, riparian-wetland areas and reservoirs or reservoir sites could benefit wildlife.

Land acquisition and disposal would result in habitat changes that would positively impact some wildlife while not benefiting others. A few isolated BLM parcels with wildlife values could be disposed of; a site specific negative impact. The overall impacts would be positive.

Alternative E (Preferred): The impacts would be similar to Alternative A, except 66,407 acres of the 161,968 BLM acres identified for disposal could be converted to small grain production.

From Access to BLM Land

Alternative A (Current): New public access would allow people to enter areas that have not been readily accessible. Public access could reduce the quality of wildlife habitat by disturbing or destroying crucial wildlife habitat or by harassing wildlife during critical periods (reproduction, nesting, raising of young, and winter survival); a minor negative impact.

Alternative B: Maintaining the present access to BLM land would allow the public to enter only those areas with current legal access. BLM lands without public access would protect wildlife habitat and species from harassment, disturbance or destruction. Wildlife harassment would continue on accessible BLM land during critical periods (reproduction, nesting, raising of young, and winter survival); a minor negative impact.

Alternative C: The impacts to wildlife would be similar to those in Alternative A, but would be specific to the areas where new access occurs.

Alternatives D & E (Preferred): The impacts to wildlife would be similar to those in Alternative A, however they would apply to specific BLM land as additional roads are developed.

From Off-Road Vehicle Designations

Alternative A (Current): ORV use could occur yearlong on 2,375,440 acres. Most use occurs during the hunting season, but some ORV use occurs yearlong from other activities. Habitat destruction would be minimal. However, wildlife harassment during critical periods would impact wildlife. Anticipated increased ORV use and human presence would cause short-term species movement. ORV activities on big game and upland game bird winter range would disturb many species already under stress. Similar disturbances during the spring and summer would occur to waterfowl, raptors and non-game birds and mammals. This harassment and disturbance would be a negative impact.

There would be very little impact to wildlife on the 428,770 acres where the yearlong restriction confines vehicle use to

existing roads and trails. BLM would provide administrative ORV access which could cause some habitat disturbance and species harassment during critical times of the year. However, these impacts would be minor.

There would be no impact to wildlife on the 1,947 acres closed to ORVs on the Square Butte ONA.

Overall, this alternative would create a negative impact to wildlife.

Alternative B: ORV use would occur yearlong on 2,687,570 acres and the impacts from habitat disturbance and wildlife harassment would be the same as those in Alternative A.

There would be very little impact to wildlife on the 116,640 acres where the yearlong restriction confines vehicle use to designated roads and trails. The impacts from administrative ORV access would be the same as those in Alternative A.

There would be no impact to wildlife on the 1,947 acres closed to ORVs on the Square Butte ONA.

Overall, this alternative would create a negative impact to wildlife.

Alternative C: ORV use would occur yearlong on 1,818,437 acres and the impacts would be the same as those in Alternative A.

There would be very little impact to wildlife on the 121,206 acres where the yearlong restriction confines vehicle use to designated roads and trails. The impacts of administrative ORV access would be the same as those in Alternative A.

There would be some impact to wildlife on 862,709 acres with seasonal restrictions. Impacts would not occur during the hunting season, however habitat disturbance and harassment could occur during the rest of the year. ORV activities on big game and upland game bird winter range would disturb many species already under stress. Similar disturbances during the spring and summer would occur to waterfowl, raptors and non-game birds and mammals. This would be a negative impact on wildlife.

The intensive use ORV area north of Glasgow (40 acres) would not impact wildlife.

There would be no impact to wildlife on the 3,805 acres closed to ORVs on the Square Butte ONA (1,947) and the core area prairie dog towns (1,858) in the southern portion of Phillips RA.

Overall, this alternative would create a positive impact to wildlife.

Alternative D: ORV use would occur yearlong only on the 40 acre intensive use area north of Glasgow. There would be no impact to wildlife.

There would be very few impacts to wildlife on the 657,667 acres where the yearlong restriction confines vehicle use to designated roads and trails. Administrative use and seasonal restrictions could still create some site specific negative impacts to wildlife. The impacts would be the same as those in Alternative A.

There would be some minor impacts to wildlife on 2,127,480 acres with seasonal restrictions. These impacts would be the same as those in Alternative C.

There would be no impact to wildlife from ORV closures on the 20,970 BLM acres in the Square Butte ONA, Collar Gulch ACEC, Acid Shale-Pine Forest ACEC, Rock Creek Canyon, and eight prairie dog core towns in the southern portion of the Phillips RA.

Overall, this alternative would create a significant positive impact.

Alternative E (Preferred): Unrestricted ORV use would occur yearlong on 1,990,501 acres and the impacts would be the same as those in Alternative A.

There would be very little impact to wildlife on the 157,413 acres where the yearlong restrictions confine vehicle use to designated roads and trails. Administrative use and seasonal restriction could create some site-specific negative impact to wildlife. These impacts would be similar to those in Alternative A.

There would be some minor impacts to wildlife on 656,296 acres with seasonal restrictions. These impacts would be the same as those in Alternative C.

The impacts to wildlife on the intensive use area north of Glasgow (40 acres) would be the same as those discussed in Alternative C.

There would be no impact to wildlife on the 1,947 acres of wildlife habitat closed to vehicular traffic on the Square Butte ONA ACEC.

Overall, this alternative would be a positive impact to wildlife.

From Oil and Gas Leasing and Development

Alternative A (Current): Wildlife resources would be protected from potential oil and gas exploration and development in those areas closed to oil and gas leasing (137,802 acres); a significant positive impact.

Most wildlife habitat (3,249,885 acres) would be protected by standard or special stipulations and No Surface Occupancy restrictions (see Table 4.8); a significant positive impact to wildlife. The only wildlife habitat that would not

be fully protected with these stipulations is raptor nesting. These species are susceptible to disturbance during the nesting season and each raptor species has a different tolerance to disturbance. The distance of disturbance from a nesting raptor varies by species. The 1/4-mile No Surface Occupancy restriction would adequately protect some raptors, but not others and could allow negative impacts to wildlife.

The Judith Game Range in the Judith RA would be protected from oil and gas activities with a special stipulation. The game range is leased with a No Surface Occupancy restriction from November 1 to March 31, and any oil production would be piped off the game range. This stipulation protects the integrity of the game range and is a positive impact to wildlife.

Overall, this alternative would protect most wildlife resources and would be a significant positive impact to wildlife.

Alternative B: Wildlife resources would be protected from potential oil and gas exploration and development in areas closed to oil and gas leasing (117,962 acres); a significant positive impact.

Most wildlife habitat would not be protected by the standard terms of moving a drilling activity 200 meters or delaying it by 60 days (see Table 4.8) (3,269,725 acres). Oil and gas activities could be placed too close to various wildlife habitats during critical time periods; a significant negative impact.

Black-tailed prairie dog towns and upland game bird leks would be the only habitat adequately protected with standard terms; a significant positive impact.

Overall, standard terms would not protect most wildlife resources and would be a significant negative impact to wildlife.

Alternative C: Wildlife resources would be protected from potential oil and gas exploration and development in areas closed to oil and gas leasing (137,802 acres); a significant positive impact.

Most wildlife habitat (3,249,885 acres) would be protected by oil and gas stipulations (see Table 4.8); a significant positive impact to wildlife.

The only wildlife habitat that would not be completely protected is winter range. The stipulation would not extend long enough into the late winter or early spring season to protect the wintering wildlife and to provide undisturbed calving opportunities. Winter is a crucial time for most resident wildlife and disturbance on the winter range lessens their fat reserve. Stress and disturbance late in the winter

can eliminate individuals who are weak from the depletion of their fat reserve. The degree of negative impact depends on the amount of oil and gas activity and the severity of the winter. This would not be a significant impact.

Overall, these stipulations would protect most wildlife resources and would be a significant positive impact.

Alternative D: Wildlife resources would be protected from oil and gas exploration and development in areas closed to oil and gas leasing (143,562 acres); a significant positive impact.

Wildlife habitat (3,244,125 acres) would be protected by oil and gas stipulations (see Table 4.8). These stipulations would protect wildlife resources and would be a significant positive impact to wildlife.

Alternative E (Preferred): Wildlife resources would be protected from oil and gas exploration and development in areas closed to oil and gas leasing (117,962 acres); a significant positive impact.

Most wildlife habitat (3,269,725 acres) would be protected by oil and gas stipulations (see Table 4.8); a significant positive impact to wildlife.

The only wildlife habitat that would not be completely protected is winter range and grouse nesting zones. The negative impacts to winter range are discussed in Alternative C. Grouse normally nest within 1.5 and 2 miles of the mating ground. Disturbance during the nesting season could cause nest abandonment however, grouse would reneest as long as the disturbance is not persistent. Even though the entire grouse nesting habitat is not protected from disturbance, oil and gas development would not impact grouse nesting in the long term.

Overall, these stipulations would protect most wildlife resources and would be a significant positive impact to wildlife.

From Hardrock Mining

Alternative A (Current): The Zortman and Landusky mining sites in the Little Rocky Mountains contain yearlong habitat for a number of wildlife, specifically bighorn sheep. Negative impacts occur to wildlife from habitat loss, human and mechanical harassment and animal loss. Mining activities have decreased the yearlong crucial habitat by 4%. The projected mine and exploration expansion (930 acres) would decrease yearlong habitat by another 5%. This loss of habitat would not be a significant impact to bighorn sheep.

TABLE 4.8
WILDLIFE PROTECTION STIPULATIONS ON BLM LAND

	A	B	C	D	E
Bald Eagle	No surface occupancy within 1/4-mile of nesting sites would not adequately protect eagles. (NEG)	Moving an activity 200 M or delaying it 60 days would not protect eagles. (SIG NEG)	No surface occupancy within 1/2-mile of an active nesting site would protect eagles. (SIG POS)	Same as C.	Same as C.
Peregrine Falcon	No surface occupancy within 1/4-mile of nesting sites would not adequately protect falcons. (NEG)	Moving an activity 200 M or delaying it 60 days would not protect falcons. (SIG NEG)	No surface occupancy within 1.0-mile of any nesting site would protect falcons. (SIG POS)	Same as C.	Same as C.
Black-Footed Ferret	No surface occupancy within 1/4-mile of dog towns would protect ferret habitat. (SIG POS)	Moving an activity 200 M or delaying it 60 days would protect ferret habitat. (SIG POS)	No surface occupancy within designated ferret reintroduction areas would protect ferret habitat. (SIG POS)	Same as C.	Controlled Surface Use for prairie dog towns within the ferret reintroduction area would protect ferret habitat. (POS)
Piping Plover	No surface disturbance within 1/4-mile of nesting sites between May 15-June 30 would protect nesting plovers. (SIG POS)	Moving an activity 200 M or delaying it 60 days would not protect nesting plovers. (SIG NEG)	No surface occupancy within 1/4-mile of plover wetland habitat would protect nesting plovers. (SIG POS)	Same as C.	Same as C.
Interior Least Tern	No surface occupancy within 1/4-mile of tern nesting sites would protect terns. (SIG POS)	Moving an activity 200 M or delaying it 60 days would not protect nesting terns. (SIG NEG)	No surface occupancy within 1/4-mile of tern wetland habitat would protect nesting terns. (SIG POS)	Same as C.	Same as C.
Ferruginous Hawk	No surface occupancy within 1/4-mile of nesting sites would not adequately protect hawks. (NEG)	Moving an activity 200 M or delaying it 60 days would not protect nesting hawks. (SIG NEG)	No surface occupancy within 1/2-mile of any nesting site active within 2 years would protect nesting hawks. (SIG POS)	Same as C.	No surface disturbance between March 1-August 1 within 1/2-mile of any nesting site active within last 2 years would protect nesting hawks. (SIG POS)
Winter Range	No surface disturbance between December 1-May 15 would protect winter range. (SIG POS)	Moving an activity 200 M or delaying it 60 days would not protect winter range. (SIG NEG)	No surface disturbance between 12/1-3/31 would not protect winter range during severe winters. (NEG)	NSO would protect winter range. (SIG POS)	Same as C.
Grouse Leks	No surface occupancy within 500 feet of leks would protect mating grouse. (SIG POS)	Moving an activity 200 M or delaying it 60 days would protect mating grouse. (SIG POS)	No surface disturbance within 1/4-mile of leks would protect mating grouse. (SIG POS)	Same as C.	No surface disturbance between March 15-June 15 within 1/4-mile or less would protect mating grouse. (SIG POS)
Grouse Nesting Zones	No surface disturbance between March 1-June 30 on nesting zone would protect nesting grouse. (SIG POS)	Moving an activity 200 M or delaying it 60 days would not protect nesting grouse. (SIG NEG)	No surface disturbance between March 1-June 30 within 2.0 miles of nesting zone would protect nesting grouse. (SIG POS)	Same as C.	No surface disturbance between March 15-June 15 within 1/4-mile of nesting zone could possibly cause nest abandonment. (POS)

TABLE 4.8 (CONTINUED)
WILDLIFE PROTECTION STIPULATIONS ON BLM LAND

	A	B	C	D	E
Raptor Nests	No surface disturbance between 3/1-8/1 within 1/4-mile of nesting sites would not protect raptor nests (NEG)	Moving an activity 200 M or delaying it 60 days would not protect raptor nests. (SIG NEG)	No surface occupancy within 1/2-mile of nesting site would protect raptor nests. (SIG POS)	Same as C.	No surface disturbance between 3/1-8/1 within 1/2-mile of nesting sites would protect raptor nests. (SIG POS)
Black-tailed Prairie Dog Towns	Moving an activity 200M or delaying 60 days would protect dog towns. (POS)	Same as A.	Same as A.	Same as A.	Same as A.
Fishing Reservoirs	No surface occupancy within 500 feet of fishing reservoirs would protect fisheries habitat. (SIG POS)	Moving an activity 200 M or delaying it 60 days would not protect fisheries habitat. (SIG NEG)	No surface occupancy within 1/4-mile of fishing reservoirs would protect fisheries habitat. (SIG POS)	Same as C.	Same as C.
Riparian Areas	No surface occupancy within 500 feet of 25 year flood plains (lakes, reservoirs, ponds and intermittent ephemeral or small perennial streams) and within 1,000 feet of 100 year flood plains (larger perennial streams, rivers and domestic water supplies) would protect riparian habitat. (SIG POS)	Moving an activity 200 M or delaying it 60 days would not protect riparian habitat. (SIG NEG)	No surface occupancy within riparian areas and 100 year flood plains would protect riparian habitat. (SIG POS)	Same as C.	Same as C.

Note: SIG = Significant
POS = Positive
NEG = NEGATIVE

Source: BLM, 1990

Wildlife is harassed by humans and mechanical apparatus in the Little Rocky Mountains. Blasting, moving ore with machinery and general mine activities disrupt the normal activities of wildlife, especially in the summer. Wildlife do adapt to the mining activities, but mining may disturb wildlife during critical time periods (breeding and rearing of young).

Mitigation during Plans of Operation on mining activities would be used to protect most wildlife habitat. Maintaining fences around leach ponds as well as developing water impoundments for wildlife away from the mine activity would draw wildlife away from the mine area.

One of the limiting factors for bighorn sheep in the Little Rocky Mountains is open, grassy, south facing slopes interspaced within the forest. Almost all of the south facing

slopes in the Little Rocky Mountains are covered with lodgepole pine. Through mining and reclamation, many of the now wooded, south facing slopes would be changed into interspaced open, grassy slopes; a positive impact.

The withdrawal of Azure Cave in the Little Rocky Mountains adequately protects the cave resources, especially bats.

Mining in the Judith Mountains has decreased the yearlong crucial habitat by less than 1%. The projected mine and exploration expansion (300 acres) would decrease yearlong habitat by another 2%. This loss of habitat would not be a significant impact to wildlife. Mining activity in the Collar Gulch area could impact the westslope cutthroat trout population; a significant negative impact as discussed in the impact analysis in the Collar Gulch ACEC section of this alternative. The general impacts discussed above for the

Little Rocky Mountains would be the same for the Judith Mountains.

Mining in the Moccasin Mountains has decreased the yearlong crucial habitat by less than 4%. The projected mine and exploration expansion (140 acres) would decrease yearlong habitat by another 1%. This loss of habitat would not be a significant impact to wildlife. The general impacts discussed above for the Little Rocky Mountains and would be the same for the Moccasin Mountains.

Mining in the Little Belt Mountains has decreased the yearlong crucial habitat by less than 1%. The projected mine and exploration expansion (60 acres) would decrease yearlong habitat by another 2%. This loss of habitat would not be a significant impact to wildlife. The general impacts discussed above for the Little Rocky Mountains would be the same for the Little Belt Mountains.

The Square Butte ONA would remain withdrawn from mining activities which protects wildlife values.

Overall, hardrock mining exploration and development impacts wildlife habitat. The protective withdrawals, reclamation and the amount of actual surface disturbance (less than 10%) would not create a significant impact on wildlife.

Alternative B: The impacts of mining in the Little Rocky Mountains would be similar to those in Alternative A, except revoking the Azure Cave withdrawal could allow mining in and around the cave. Azure Cave could be mined and the wildlife values lost. Mitigation may take place, but mining could destroy the important features of the cave as a valuable bat hibernaculum. This would be a significant negative impact to wildlife.

The impacts of mining in the Judith, Moccasin and Little Belt Mountains would be the same as those in Alternative A.

Opening the Square Butte ONA to mining claim location would be a significant negative impact.

Overall, hardrock mining exploration and development impacts wildlife habitat. The current amount of actual surface disturbance (less than 10%) would not have a significant impact on wildlife. However, the loss of specific protective withdrawals would have locally significant negative impacts. Overall, the impacts to wildlife would not be significant.

Alternative C: The impacts of mining in the Little Rocky, Moccasin, Little Belt and Judith Mountains would be the same as those discussed in Alternative A.

The Square Butte ONA would remain withdrawn from mining activities which protects wildlife values.

Overall, hardrock mining exploration and development impacts wildlife habitat. The protective withdrawals, reclamation and the amount of actual surface disturbance (less than 10%) would not create a significant impact to wildlife.

Alternative D: The impacts of mining in the Little Rocky Mountains would be similar to those in Alternative A, except the withdrawal of crucial bighorn sheep habitat (5,504 acres) would eliminate the disturbance of an additional 4% of the habitat.

The impacts of mining activities in the Judith Mountains would be similar to those in Alternative A, except withdrawals would be proposed in the Judith Mountains (25,160 acres). The withdrawal of crucial elk habitat would eliminate future disturbances from mining on 1% of the habitat. The withdrawal in the Collar Gulch ACEC would protect the westslope cutthroat trout as discussed in the impact analysis in the Collar Gulch ACEC section of this alternative. The Judith Mountains contain yearlong habitat for various wildlife and the withdrawal would protect this habitat from mining activity; a positive impact.

The impacts of mining activity in the Moccasin Mountains would be similar to those in Alternative A, except the withdrawal of crucial elk habitat (3,267 acres) would eliminate future disturbance from mining.

The impacts of mining activity in the Little Belt Mountains and Square Butte ONA would be the same as those in Alternative A.

Overall, hardrock mining exploration and development impacts wildlife habitat. The various protective withdrawals, reclamation and the amount of actual surface disturbance (less than 10%) would have a significant positive impact on the wildlife resource in this alternative.

Alternative E (Preferred): The impacts in the Little Rocky and Little Belt Mountains and the Square Butte ONA would be the same as those in Alternative A.

The impacts of mining in the Judith Mountains would be similar to Alternative A, except management prescriptions to protect scenic values and elk habitat would reduce the impacts to wildlife.

The impacts of mining in the Moccasin Mountains would be similar to Alternative A, except surface disturbance would be reduced to protect crucial elk habitat.

Overall, hardrock mining exploration and development impacts wildlife habitat. The protective withdrawals, reclamation and the amount of actual surface disturbance (less than 10%) would not create a significant impact to wildlife.

From Riparian and Wetland Management of Watersheds

Alternative A (Current): Improving or maintaining the quality of 498 stream miles (11,952 acres) in 270 allotments, especially the habitat in poor condition, would provide better quality habitat for numerous species (see Table 4.9). Habitat in good condition may support as many as 104 wildlife species, as found along the Milk River in 1983 (BLM, 1985).

Those stream riparian areas not included in this alternative (2,424 acres or 101 miles) would remain static or decline in condition, as would their value as wildlife habitat.

Increasing the quality of upland habitat in combination with additional reservoirs, surface acres of water and goose nesting islands in 270 allotments would increase wildlife habitat and numbers (see Table 4.9). The goose nesting islands would also provide secure nesting habitat for many other wildlife species such as ducks, shorebirds and some upland non-game birds. Geese also nest on reservoir shorelines, but at a significantly reduced level. This alternative could produce an additional 149,900 ducks and 23,800 geese annually.

The condition of those wetland areas not included in this alternative (2,269 reservoirs/6,807 acres) would remain static or decline, as would their value as wildlife habitat.

Overall, this alternative would create a significant positive impact to wildlife.

**TABLE 4.9
ALTERNATIVE A
RIPARIAN AND WETLAND MANAGEMENT**

	Current Conditions	Alternative A Would
Streams Considered in this Alternative	7,176 acres/299 miles of streams in good or excellent condition	Maintain or improve this habitat
	4,776 acres/199 miles of streams in fair condition	Improve this habitat to good or excellent condition
Streams Not Considered in this Alternative	2,424 acres/101 miles	This habitat would remain static or decrease in condition
Wetlands Considered in this Alternative	4,118 reservoirs/12,354 acres with 1,150 goose nesting islands producing 111,200 ducks and 3,200 geese annually	Provide an additional 5,550 reservoirs/16,650 acres and an additional 8,513 nesting islands which would produce an additional 149,900 ducks and 23,800 geese annually
Wetlands Not Considered in this Alternative	2,269 reservoirs/6,807 acres with 635 nesting islands producing 6,800 ducks and 1,800 geese annually	This habitat would remain static or decrease in condition

Source: BLM, 1990

Alternative B: This alternative would include 192 allotments with 368 miles of stream riparian areas (8,832 acres). Improving the quality of this habitat would provide better quality habitat for numerous species (see Table 4.10).

The condition of those stream riparian areas not included in this alternative (5,544 acres/231 miles) would remain static or decline, as would their value as wildlife habitat.

Increasing the quality of the upland habitat, number of reservoirs, surface acres of water and goose nesting islands

in 192 allotments would create the same type of impacts as Alternative A, but could produce an additional 97,000 ducks and 17,100 geese annually (see Table 4.10)

The condition of those wetland areas not included in this alternative (2,907 reservoirs/8,721 acres) would remain static or would decline, as would their value as wildlife habitat.

Overall, this alternative would create a significant positive impact to wildlife.

**TABLE 4.10
ALTERNATIVE B
RIPARIAN AND WETLAND MANAGEMENT**

	Current Conditions	Alternative B Would
Streams Considered in this Alternative	8,832 acres/368 miles of streams in fair, good or excellent condition	Maintain or improve the good or excellent habitat and improve the fair habitat to good or excellent condition
Streams Not Considered in this Alternative	5,544 acres/231 miles	This habitat would remain static or decrease in condition
Wetlands Considered in this Alternative	3,480 reservoirs/10,440 acres with 970 goose nesting islands producing 94,000 ducks and 2,700 geese annually	Provide an additional 3,593 reservoirs/10,779 acres and 6,107 nesting islands on all sources which would produce an additional 97,000 ducks and 17,100 geese annually
Wetlands Not Considered in this Alternative	2,907 reservoirs/8,721 acres with 814 nesting islands producing 8,700 ducks and 2,300 geese annually	This habitat would remain static or decrease in quality

Source: BLM, 1990

Alternative C: This alternative would include 421 allotments and 556 miles of stream riparian areas. Improving the quality of stream riparian areas would provide better quality habitat for wildlife on 12,350 acres (see Table 4.11).

The condition of those stream areas not included in this alternative (1,032 acres/43 miles) would remain static or decline, as would their value as wildlife habitat.

Increasing the quality of the upland habitat, number of reservoirs, surface acres of water and goose nesting islands

in 421 allotments would create the same type of impacts as Alternative A, but could produce an additional 150,300 ducks and 27,500 geese annually (see Table 4.11).

The condition of those wetland areas not included in this alternative (477 reservoirs/1,431 acres) would remain static or decline, as would their value as wildlife habitat.

Overall, this alternative would create a significant positive impact to wildlife.

**TABLE 4.11
ALTERNATIVE C
RIPARIAN AND WETLAND MANAGEMENT**

	Current Conditions	Alternative C Would
Streams Considered in this Alternative	13,344 acres/556 miles of streams in fair, good or excellent condition	Maintain or improve the good or excellent habitat and improve the fair habitat to good or excellent condition
Streams Not Considered in this Alternative	1,032 acres/43 miles	This habitat would remain static or decline in condition
Wetlands Considered in this Alternative	17,730 acres/5,910 reservoirs with 1,649 nesting islands producing 159,600 ducks and 4,600 geese annually	Provide an additional 5,568 reservoirs/16,704 acres with an additional 9,823 nesting islands would produce an additional 150,300 ducks and 27,500 geese annually
Wetlands Not Considered in this Alternative	477 reservoirs/1,431 acres with 135 nesting islands producing 1,400 ducks and 400 geese annually	This habitat would remain static or decrease in condition

Source: BLM, 1990

Alternative D: This alternative would include 647 allotments with 599 miles of stream riparian areas (14,376 acres). Improving the quality of these areas would provide the same type of impacts discussed in Alternative A. (see Table 4.12).

Increasing the number of reservoirs, surface acres of water and goose nesting islands would create the same types of impacts as Alternative A, but could produce an additional 161,100 ducks and 29,600 geese annually, (see Table 4.12).

Overall, this alternative would create a significant positive impact to wildlife.

Alternative E (Preferred): Improving or maintaining the quality of the stream riparian areas in 348 allotments (14,280 acres/595 miles) in this alternative would produce the same type of impacts discussed in Alternative A (see Table 4.13).

The condition of those stream riparian areas not included in this alternative 96 acres/4 miles) would remain static or decline, as would their value as wildlife habitat.

Increasing the quality of the upland habitat, number of reservoirs, surface acres of water and goose nesting islands in 348 allotments would create the same types of impacts as Alternative A, but could produce an additional 161,100 ducks and 25,800 geese annually (see Table 4.13).

The condition of those wetland areas not included in this alternative (537 reservoirs/1,611 acres) would decline, as would their value as wildlife habitat.

Overall, this alternative would create a significant positive impact to wildlife.

**TABLE 4.12
ALTERNATIVE D
RIPARIAN AND WETLAND MANAGEMENT**

	Current Conditions	Alternative D Would
Streams Considered in this Alternative	14,376 acres/599 miles	Maintain or improve the good or excellent habitat and improve the fair habitat to good or excellent condition.
Wetlands Considered in this Alternative	6,387 wetlands/19,161 acres with 1,784 goose nesting islands producing 172,400 ducks and 5,000 geese annually	Provide an additional 5,967 reservoirs/17,901 acres with an additional 10,570 nesting islands would produce an additional 161,100 ducks and 29,600 geese annually

Source: BLM, 1990

**TABLE 4.13
ALTERNATIVE E
RIPARIAN AND WETLAND MANAGEMENT**

	Current Conditions	Alternative E Would
Streams Considered in this Alternative	14,280 acres/595 miles in fair, good or excellent condition	Maintain or improve the good or excellent habitat and improve the fair habitat to good or excellent condition
Streams Not Considered in this Alternative	96 acres/4 miles	This habitat would remain static or decline in condition
Wetlands Considered in this Alternative	5,850 reservoirs/17,550 acres with 1,631 nesting islands producing 158,000 ducks and 4,600 geese annually	Provide an additional 5,005 reservoirs/15,015 acres with an additional 9,212 nesting islands and would produce an additional 135,100 ducks and 25,800 geese annually
Wetlands Not Considered in this Alternative	537 reservoirs/1,611 acres with 153 nesting islands producing 1,600 ducks and 400 geese annually	This habitat would remain static or decline in condition

Source: BLM, 1990

From Elk and Bighorn Sheep Habitat Management

Alternative A (Current): BLM would provide 593,980 acres of elk habitat throughout the planning area, but would not provide additional habitat. This would not allow elk expansion in the Highwood and Little Belt Mountains or the Missouri River Breaks north of the river. Elk from these three areas are expanding and impacting adjacent property (private, state and federal) by damaging crops and consuming livestock forage. The habitat in the Highwood and Little Belt Mountains is at its elk carrying capacity and populations are being held at their present levels.

Additional elk habitat would be provided on Square Butte and in the Judith, North Moccasin, Little Snowy and Big Snowy Mountains. Elk would also be allowed to expand into other portions of the planning area, but BLM would not allocate additional forage to accommodate such expansions.

BLM would provide 84,711 acres of bighorn sheep habitat throughout the planning area. The bighorn habitat in the Little Rocky Mountains, Larb Hills and Chimney Bend areas support huntable populations and could support additional bighorns before reaching its carrying capacity. The most significant potential negative impact could occur from contact between bighorns and domestic sheep. Bighorn sheep in these habitat areas could be significantly reduced by contracting diseases from domestic sheep.

Overall, this alternative would be a positive impact to wildlife.

Alternative B: BLM would provide 593,980 acres of elk habitat throughout the planning area. The impacts in the Highwood and Little Belt Mountains and the Missouri River Breaks areas would be the same as those discussed in Alternative A.

Additional elk habitat would not be available on Square Butte or in the Judith, North Moccasin, Little Snowy and Big Snowy Mountains. Elk would be confined to their current habitat areas which could impact the quality of their forage.

This alternative would provide 66,788 acres of bighorn sheep habitat throughout the planning area. Bighorns would be confined to their current habitat areas which could impact the quality of their forage. Bighorn sheep in these habitat areas could be significantly reduced by contracting diseases from domestic sheep.

Overall, this alternative would create a negative impact.

Alternative C: This alternative would provide 593,980 acres of elk habitat throughout the planning area. The Highwood and Little Belt Mountains and in the Missouri River Breaks habitat would not support additional elk. The Square Butte and in the Judith, North Moccasin, Little

Snowy and Big Snowy Mountains habitat areas could support additional elk.

This alternative would provide 84,711 acres of bighorn sheep habitat throughout the planning area and would provide additional habitat at the mouth of the Judith River. The bighorn habitat areas in the Little Rocky Mountains, Larb Hills and Chimney Bend areas could support additional bighorns and would not be impacted by contact with domestic sheep. BLM would not allow domestic sheep grazing to overlap bighorn sheep habitat. This would protect bighorns from contracting diseases from domestic sheep.

Overall, this alternative would create a significant positive impact for wildlife.

Alternative D: The elk habitat in the Highwoods, Little Belts, Missouri Breaks, Judiths, North Moccasins, Little Snowys and Big Snowys would be managed as discussed in Alternative A.

BLM would provide an additional 66,160 acres of elk habitat in the Little Rocky and South Moccasin Mountains and the Bull Creek area of the Missouri Breaks.

Acquiring crucial elk habitat would stabilize land use practices and protect habitat from developments that would reduce the value to wildlife or make it inaccessible. Acquiring specific cropland or alfalfa meadows would decrease the incidence of elk depredation on private property. Planting lure crops on strategic BLM lands to draw elk away from private property may reduce elk depredation on private property.

BLM would provide 156,930 acres of bighorn sheep habitat throughout the planning area. This would provide additional bighorn habitat in the Larb Hills (Bull Creek) and at the mouth of the Judith River. Bighorn and domestic sheep disease problems would not occur because BLM would not allow domestic sheep grazing to overlap bighorn as discussed in Alternative C.

Acquiring crucial sheep habitat would stabilize that habitat and protect it from development that would negatively impact the habitat or make it inaccessible to the public.

Overall, this alternative would create a significant positive impact for wildlife.

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From Prairie Dog and Black-footed Ferret Management

Alternative A (Current): Eliminating prairie dog towns on BLM land in the Judith RA would reduce the habitat available for associate species; a significant negative impact.

Managing 770 acres of prairie dog towns in the Valley RA would provide for associate species and prairie dog shooting which would slightly reduce the density of prairie dogs; a positive impact. This acreage would not provide enough habitat for reintroducing the black-footed ferret.

Eliminating 10,013 acres (75%) of the prairie dog towns in the Phillips RA and the scattered nature (further than 7km apart) of the remaining 3,308 acres (25%) would reduce the habitat available for associate species and would be a significant negative impact to the potential of this area to support a ferret reintroduction.

New prairie dog towns larger than 50 acres would be allowed and could support associate species and depending on their location, could be important to a black-footed ferret reintroduction. New prairie dog towns smaller than 50 acres would be eliminated.

Prairie dog shooting would continue on the remaining 3,308 acres until there was a black-footed ferret reintroduction, then no further shooting would be allowed. Prairie dog shooting could limit town expansion to 3% per year, while normal prairie dog expansion averages 15% per year. This would not impact a potential black-footed ferret reintroduction.

Additional measures would be required around each prairie dog town identified for reintroduction. These measures could include modifying power poles associated with above ground ROW, defining avoidance areas for ROW, No Surface Occupancy restrictions on oil and gas exploration and development and no additional livestock improvements or grazing on these towns and a 1/4-mile perimeter around each town (10,680 acres). These measures would maintain the area's potential as a ferret reintroduction area.

Overall, this alternative would create a significant negative impact to prairie dogs and black-footed ferret reintroduction by eliminating 75% of the prairie dog acreage in the Phillips RA.

Alternative B: The impacts in the Judith and Valley RAs would be the same as those in Alternative A.

Eliminating 55% of the prairie dog acreage (6,458 acres) in the Phillips RA and not allowing new towns would reduce the habitat available for associate species and would be a significant negative impact to the potential of this area to support a ferret reintroduction.

Prairie dog shooting would continue on the remaining 6,462 acres of prairie dog towns. This could create negative impacts to black-footed ferrets by reducing their primary food source or disturbing ferrets.

ORV use in Complex 1 could harass or disturb ferrets during the reintroduction process; a negative impact.

Oil and gas exploration and development would have little effect on the area's potential as a ferret reintroduction area.

Acquiring lands with prairie dog towns would provide more habitat for associate species and black-footed ferret reintroduction; a positive impact.

Overall, this alternative would create a significant negative impact to prairie dogs and black-footed ferret reintroduction by eliminating 55% of the prairie dog acreage in the Phillips RA.

Alternative C: The impacts in the Judith and Valley RAs would be the same as those in Alternative A.

About 56% of the prairie dog acreage (7,367 acres) would be available for black-footed ferret reintroduction. This would not be enough acreage to support a black-footed ferret reintroduction. Another 9% of the prairie dog acreage would be eliminated and the remaining 35% would be managed for prairie dog shooting.

Prairie dog shooting would continue in Complex 1+2 until a ferret reintroduction occurs and the expansion rates would average 3% and 15% respectively before and after reintroduction. This would not impact the area's potential for ferret reintroduction.

New prairie dog towns would be allowed within Complex 1+2. This would provide additional habitat for associate species and help maintain the integrity of Complex 1+2; a positive impact.

The management guidelines for above ground ROW, livestock grazing and range improvements in core towns within Complex 1+2 would be the same as those in Alternative A and would not impact the area's potential as a ferret reintroduction area.

Oil and gas exploration and development with No Surface Occupancy restrictions would protect the area's potential as a ferret reintroduction area and be a significant positive impact.

Acquiring lands with prairie dog towns would provide more habitat for associate species and black-footed ferret reintroduction; a positive impact.

Overall, this alternative would be a significant negative impact to prairie dogs, associate species and the area's potential as a reintroduction area.

Alternative D: Prairie dog acreage would be allowed to expand to 5,000 acres each in the Judith and Valley RAs (10,000 acres total). This would provide additional habitat for prairie dog viewing, shooting or associate species; a significant positive impact. This type of expansion could also provide habitat for ferret reintroduction and new towns could be strategically located to develop a complex.

Maintaining the prairie dog acreage in the Phillips RA would be a significant positive impact to prairie dogs, associate species and the area's potential as a ferret reintroduction area.

New prairie dog towns would be allowed within the 7km Complex. This would benefit prairie dogs, associate species and maintain the integrity of the 7km Complex; a positive impact.

Prairie dog shooting would be managed in this area (7km Complex) and could create a negative impact by reducing the ferret's primary food source or disturbing ferrets.

Above ground ROW, livestock grazing, range improvements and ORV use would not be allowed within 1/4-mile of the eight core towns within the 7km Complex. This would maintain the integrity of the complex.

Seasonal livestock grazing and livestock improvements on the 16 secondary core towns in this complex would mitigate livestock impacts to black-footed ferrets. ORV use on these secondary core towns would be restricted yearlong to existing roads and trails which would also mitigate impacts to black-footed ferrets.

Oil and gas leasing with No Surface Occupancy restrictions would be a significant positive impact to the area's potential as a reintroduction area.

Acquiring lands with prairie dog towns would provide more habitat for associate species and black-footed ferret reintroduction; a positive impact.

Overall, this alternative would be a significant positive impact to black-footed ferret reintroduction.

Alternative E (Preferred): BLM would maintain the existing prairie dog towns in the Judith and Valley RAs and there would be no impacts.

The BLM land identified for ferret reintroduction in the Phillips RA (12,346 acres) would be designated an ACEC and would be a portion of a larger area (approximately 26,000 acres) identified as the 7km Complex. This complex also contains 5,800 CMR acres, 2,012 DSL acres and 5,821 private acres. These acreage figures could fluctuate, but would be held at the 1988 level. This would be a significant positive impact for prairie dogs, associate species and the area's potential as a black-footed ferret reintroduction area.

Prairie dog shooting would be allowed on BLM land within the 7km Complex and could create a negative impact by reducing the ferret's primary food source or disturbing ferrets. However, shooting can be used as a supplemental form of prairie dog control.

Oil and gas leasing with controlled surface use for prairie dogs within the reintroduction area would protect the black-footed ferret; a significant positive impact.

Other restrictions within the 7km Complex would create positive impacts for prairie dogs, associate species and the area's potential as a reintroduction area

Overall, this alternative would be a significant positive impact to prairie dogs, associate species and the black-footed ferret.

From the Judith Mountains Scenic Area ACEC

Alternatives A (Current) & B: Hardrock mining exploration and development would create a minor impact on wildlife.

Alternatives C, D & E (Preferred): No impact to wildlife.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to wildlife.

From the Square Butte ONA ACEC

Alternative A (Current): The Square Butte ONA would remain withdrawn from mining activities which protects wildlife values and would not impact wildlife.

Alternative B: Opening the area to mining claim location would be a negative impact to wildlife.

Alternative C: Acquiring an additional 1,760 acres and continuing the mineral withdrawal would protect wildlife values; a significant positive impact.

Alternatives D & E (Preferred): Acquiring an additional 4,760 acres and continuing the mineral withdrawal would protect wildlife values; a positive impact.

From the Collar Gulch ACEC

Alternatives A & B: The Collar Gulch area consists of a stream about 1.5 miles long in the Judith Mountain that contains a pure strain of westslope cutthroat trout. The upper 1/2 mile is on BLM land. There are occasional mining activities in and near the creek. It is estimated that 5% of the habitat in Collar Gulch has been disturbed or destroyed by mining and an additional 10% could be destroyed in the

future. Most of the impacts are minor, but if a mining discovery is made in the future, the cutthroat trout population in Collar Gulch Creek could be completely lost; a significant negative impact.

There are 40 acres of patented mining claims located within Collar Gulch. Mining could affect adjacent BLM land and have a significant negative impact to wildlife.

Based on past activity, Tate-Poetter Cave should not be impacted unless a mining operation was placed over or in the immediate vicinity of the cave. Chances of this occurring are considered slight.

Additional claims could be patented in Collar Gulch. Once a claim is patented, the BLM no longer has control to protect the trout population. This is a significant negative impact to wildlife. Overall, there is a significant negative impact to wildlife.

Alternative C: Mitigating measures would be proposed in the Judith Mountains to protect 1,160 acres in the Collar Gulch ACEC. This would be a significant positive impact to wildlife, especially for the pure strain of westslope cutthroat trout in Collar Gulch Creek. Mitigating measure would apply to unpatented mining claims and would protect the wildlife values.

The 40 acres of patented mining claims could be acquired. This action would be a significant positive impact to wildlife.

Collar Gulch would not be protected from all mining activities. The area would be subject to claim location and mineral activity without a mineral withdrawal. It is estimated that 5% of the habitat in Collar Gulch has been disturbed or destroyed by mining and an additional 10% could be destroyed in the future. This could be an overall significant negative impact to wildlife.

Alternative D: A mineral withdrawal would be proposed in the Judith Mountains to protect 1,618 acres in the Collar Gulch ACEC. This would be a significant positive impact to wildlife, especially for the pure strain of westslope cutthroat trout in Collar Gulch Creek.

It is estimated that 5% of the habitat in Collar Gulch has been disturbed or destroyed by mining and an additional 10% could be disturbed or destroyed in the future. The projected 10% would not take place with the mineral withdrawal. This would be a significant positive impact to wildlife.

The 40 acres of patented mining claims could be acquired. This action would be a significant positive impact to wildlife.

The additional acquisition of the private land at the mouth of the canyon would place the entire Gulch in BLM ownership. This would allow for full protection of the cutthroat trout, an additional positive impact to wildlife.

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From the Azure Cave ACEC

Alternative A (Current): Azure Cave is currently withdrawn from mineral entry and closed to public use which protects the cave's values; a significant positive impact.

Alternative B: Revoking the Azure Cave withdrawal could allow mining in and around the cave. The cave could be completely mined and the wildlife values lost. Allowing entrance to the cave through the year could disturb the cave's hibernaculum values. If the disturbance is severe enough or frequent enough, the fat reserve of the bats is used up. When this occurs the bat dies in hibernation or if the reserve is used up as the bat comes out of hibernation, the bat is weak and not able to survive long enough to collect food, gain strength and rebuild its fat reserve for the next hibernation, thus dying during the food gathering process. This alternative would create significant negative impacts.

Alternative C: The cave would be open to the public from May 15 to September 15. Recreational use through that period could disturb bat hibernation and decrease or eliminate the bat population; a significant negative impact.

Alternative D: The cave would be open to the public from June 15 to August 15. Recreational use through that period would not disturb bat hibernation and the facilities proposed would not inhibit bat movement. This would be a significant positive impact.

Alternative E (Preferred): This alternative would not disturb bats during hibernation and the facilities proposed would not inhibit normal bat movements. This would be a significant positive impact.

From the Big Bend of the Milk River ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to wildlife.

IMPACTS TO FORESTRY

From Land Acquisition and Disposal

Alternatives A (Current), B, C, D & E (Preferred): Disposing of BLM land could create a loss of approximately 1,000 acres of productive forest land in Fergus County. However, land acquired in exchange for the disposal land could contain productive forest land. The potential net gain or loss of productive forest land cannot be accurately

determined without knowing the specific locations of lands that would be acquired. In the past, many of the acquisitions have contained productive forest land. Therefore, the potential exists for an increase in annual allowable cut, depending on the volume of timber on lands that may be acquired.

From Access to BLM Land

Alternatives A (Current), B, C, D & E (Preferred): No impact to forestry.

From Off-Road Vehicle Designations

Alternative A (Current): Restricting motorized travel would lessen the fire hazard potential; a positive impact.

Alternative B: There would be a greater fire hazard potential with unrestricted off-road travel which could create a negative impact to forestry.

Alternatives C, D & E (Preferred): The impacts would be the same as those in Alternative A.

From Oil and Gas Leasing and Development

Alternatives A (Current), B, C, D & E (Preferred): No impact to forestry.

From Hardrock Mining

Alternatives A (Current), B, C, D & E (Preferred): There could be a loss of some productive timber in the Little Rocky and North Moccasin Mountains with expansion of the existing mining operations. This would not be a significant loss.

From Riparian and Wetland Management of Watersheds, Elk and Bighorn Sheep Habitat Management, and Prairie Dog and Black-footed Ferret Habitat Management

Alternatives A (Current), B, C, D & E (Preferred): No impact to forestry.

From the Judith Mountains Scenic Area ACEC

Alternatives A (Current) & B: No impact to forestry.

Alternatives C & D: Approximately 3,000 acres of productive forest land which lies in the area, would be limited to selective cutting. This could have a minor negative impact on forestry.

Alternative E (Preferred): Approximately 2,200 acres of productive forest land which lies in the Judith Mountains Scenic Area would be limited to selective cutting. This could have a minor negative impact on forestry.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to forestry.

From the Square Butte ONA ACEC and the Collar Gulch ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to forestry.

Alternative C: Approximately 700 acres of forest land would be taken out of production in Fergus County; a minor negative impact.

Alternatives D & E (Preferred): Approximately 900 acres of forest land would be taken out of production in Fergus County. This would have a slight negative effect at the local level, but would not be significant on the regional level.

From the Azure Cave ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to forestry.

From the Big Bend of the Milk River ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to forestry.

IMPACTS TO CULTURAL RESOURCES

From Land Acquisition and Disposal

Alternatives A (Current), B, C, D & E (Preferred): Inventorying all lands identified for disposal could create a positive impact by increasing the amount of cultural resource

information. Acquired land could contain cultural resources that would increase opportunities and information.

From Access To BLM Land

Alternatives A (Current), B, C, D & E (Preferred): Public access to BLM land may increase vehicle use of existing trails during wet conditions and increase the potential for cultural resource damage and vandalism. Such impacts could be mitigated by avoidance, where possible, or by information recovery. The overall impacts would be minor.

From Off-Road Vehicle Designations

Alternatives A (Current) & B: Minimal ORV restrictions could create negative impacts by contributing to cultural resource damage, vandalism or casual or commercial collection; a negative impact.

Alternative C: Seasonal restrictions on ORV use would reduce potential cultural resource damage, vandalism or unauthorized collection; a positive impact.

Alternative D: ORV restrictions would reduce potential cultural resource damage, vandalism or unauthorized collection; a positive impact.

Alternative E (Preferred): The impacts would be the same as those in Alternative C.

From Oil and Gas Leasing and Development

Alternative A (Current): Cultural resources would be protected by using standard lease terms, the Notice (MT-3101-1) and the potential for a No Surface Occupancy restriction on cultural properties of a significant nature. In most cases, direct impacts to cultural resources could be avoided. Inventorying lands could create a positive impact by increasing the amount of cultural resource site information. Additional development could create adverse impacts for cultural properties through additional disturbance.

An unknown number of an estimated 1,286 cultural properties could be impacted. In most cases, these impacts can be mitigated through avoidance or information recovery.

Alternative B: The impacts would be similar to those in Alternative A, but for an unknown percentage of an estimated 1,307 cultural properties. In most cases, these impacts can be mitigated through avoidance or information recovery.

Alternative C: Cultural resources would be protected by standard lease terms and a No Surface Occupancy restriction on priority sites, eligible for the NRHP. Cultural resource

sites protected only by standard terms would be mitigated by avoidance, where possible, information recovery or further documentation and recording. Impacts would be similar to Alternative A, but for an unknown percentage of an estimated 1,227 cultural properties. In most cases, these impacts can be mitigated through avoidance or information recovery.

Alternative D: This alternative relies heavily on a No Surface Occupancy restriction to protect a variety of resource values, including cultural resources. Impacts similar to Alternative A, but for an unknown percentage of an estimated 643 cultural properties. In most cases, these impacts can be mitigated through avoidance or information recovery.

Alternative E (Preferred): The impacts would be similar to those in Alternative A, but for an unknown percentage of an estimated 1,289 cultural properties.

From Hardrock Mining

Alternative A (Current): In general, impacts to cultural properties from mining are proportional to the number of acres disturbed. Increasing/decreasing the number of acres open to mineral entry therefore has the potential to increase/decrease impacts to cultural properties. Planned mineral withdrawal revocations may thereby result in impacts to cultural properties, if such properties are present. Potential impacts could probably be mitigated through avoidance or information recovery as permit stipulations under public land laws in most cases. A total of 2,653 acres are segregated from mineral entry under this alternative.

Alternative B: Potential impacts would be similar to those in Alternative A, but more extensive as a total of 320 acres would be segregated from mineral entry. This would increase the risk for disturbance.

Alternatives C, D & E (Preferred): Potential impacts would be similar to those in Alternative A, but less extensive as a total of 2,447 acres would be segregated from mineral entry. This would decrease the risk for disturbance.

Alternative D: Potential impacts would be similar to those in Alternative A, but less extensive as a total of 50,533 acres would be segregated from mineral entry.

Alternative E (Preferred): Potential impacts would be similar to those in Alternative A, but less extensive as a total of 6,205 acres would be segregated from mineral entry.

From Riparian and Wetland Management of Watersheds

Alternative A (Current): Proposed water developments could negatively impact cultural resources by disturbing

the context in which the resources are found or by scattering cultural resources. However, standard operating procedures should prevent unnecessary negative impacts and could create a positive impact by providing additional resource information. Overall, this alternative would create a minor negative impact.

Alternative B: Fewer water developments would create fewer negative impacts and less cultural resource information gathering. Overall, this alternative would create a minor negative impact.

Alternative C: Increasing the number of water developments would increase the negative impacts to cultural resources discussed in Alternative A. This would also increase the amount of additional cultural resource information provided. Overall, this alternative would create a minor negative impact.

Alternative D: This alternative could result in the greatest number of water developments and would create the most negative impacts to cultural resources. It would also provide the most additional resource information. Overall, this alternative would create a minor negative impact.

Alternative E (Preferred): The impacts would be the same as those in Alternative C.

From Elk and Bighorn Sheep Habitat Management

Alternatives A (Current), B & C: No impacts to cultural resources.

Alternatives D & E (Preferred): Planting lure forage crops would require cultural resource inventories, which could create positive impacts by gathering additional resource information.

From Prairie Dog and Black-footed Ferret Management

Alternatives A (Current), B, C, D & E (Preferred): Mechanical treatments would require cultural resource inventories, which could create positive impacts by gathering additional resource information.

From the Judith Mountains Scenic Area

Alternatives A (Current) & B: In general, impacts to cultural properties are proportional to the number of acres disturbed. Standard operating procedures would be followed and potential impacts would be mitigated through avoidance or information recovery where possible though there would still be some potential for impacts.

Alternative C: Potential impacts would be similar to Alternative A, but less extensive because of a reduced possibility of large ground disturbing development projects due to required adherence to Class II visual standards. Standard operating procedures would be followed and no impacts anticipated.

Alternative D: Removal of lands from mineral entry would reduce the potential for impacts from mineral development. Standard operating procedures would be followed and no impacts anticipated.

Alternative E (Preferred): The impacts would be the same as those in Alternative C.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to cultural resources.

From the Square Butte ONA ACEC

Alternative A (Current): Designating 1,947 acres as an ACEC would protect the area's cultural resources; a positive impact.

Alternative B: This alternative would allow mining which would negatively impact cultural resources.

Alternative C: Designating 1,947 acres as an ACEC would protect the area's cultural resources. However, trail development could contribute to additional cultural resource disturbance or unauthorized collection. Overall, the impacts would be positive.

Alternatives D & E (Preferred): Designating 1,947 acres as an ACEC would be a positive impact to the area's cultural resources. This alternative would also create a parking area at the base of Square Butte, increase trail development on the butte and create easier access to the butte. These developments could contribute to cultural site disturbance or unauthorized collection which would be negative impacts. Overall, the impacts would be positive.

From the Collar Gulch ACEC

Alternative A (Current) & B: Hardrock mining activities could create negative impacts to cultural resources. These impacts could be lessened by additional information recovery.

Alternatives C & D: No impact to cultural resources.

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From the Azure Cave ACEC

Alternative A (Current): No known cultural resources would be directly impacted by this alternative. However, there is a slight possibility of negative impacts if surface disturbing activities such as drilling and blasting damage cave or cultural resources in the area.

Alternative B: This alternative would allow mining activities which could impact cultural resources in the area; a minor negative impact.

Alternatives C, D & E (Preferred): The impacts would be the same as those in Alternative A.

From the Big Bend of the Milk River ACEC

Alternative A (Current): This alternative would allow continued energy development and ORV use and potential negative impacts to the area's cultural resources; particularly the Beaucoup Site Complex. These impacts include site disturbance and vandalism. Such impacts could be lessened, but not eliminated, by information retrieval. An NSO restriction for oil and gas exploration and development could prevent energy development impacts from occurring to the Henry Smith Site; a positive impact. Overall, the impacts would be negative.

Alternative B: The impacts of this alternative would be similar to those in Alternative A, except the lack of an NSO restriction for the Henry Smith Site would allow negative impacts from oil and gas development.

Alternative C: Designating the 2,120 acres an ACEC and managing the Beaucoup Site exclusively for scientific use would produce additional information which would be a positive impact. Additional natural gas development could potentially create negative impacts from site disturbance, but these impacts could be lessened by additional information gathering. Vandalism would be reduced; a positive impact.

Managing the Henry Smith Site for public use would be a positive impact. Placing an NSO stipulation on this area for oil and gas exploration and development would also be a positive impact. Overall, the impacts would be positive.

Alternative D: Designating a large area (10,720 acres) an ACEC and managing its cultural resources for increased inventory and data recovery, would be positive impacts. The entire ACEC would be managed more intensively to prevent vandalism; a positive impact. Because much of the ACEC is presently leased, additional natural gas development could create negative surface disturbance impacts. Such impacts could be lessened by additional information recovery. The NSO restriction on the Henry Smith Site area would be a positive impact.

Alternative E (Preferred): Designating the 2,120 acres an ACEC and managing the Beaucoup Site for scientific use would be positive impacts. Continued natural gas development could create negative impacts, which could be lessened by additional information gathering. Managing the Henry Smith Site for scientific use would be a positive impact. Both site areas would be managed more intensively to prevent vandalism; a positive impact.

IMPACTS TO RECREATION

From Land Acquisition and Disposal

Alternatives A (Current) B, C, D & E (Preferred): The impact of disposing BLM land would be negligible since most of the parcels identified for disposal are isolated and receive little or no recreation use.

Acquiring land in exchange for BLM land could increase recreation opportunities, considering that past acquisitions have primarily been for known recreation values or recreation potential. This would result in an increase of recreation use.

Consolidating BLM land would reduce recreation and landowner conflicts. There would be less stress on the visitor with a decreasing number of private landowner conflicts. Ease of movement on BLM land with a decreasing amount of trespass and private landowner conflicts would provide greater freedom for the visitor.

Private land currently under lease to outfitters, but acquired by BLM would become available for public use by all hunters once in BLM ownership. Outfitters would compete with other recreationists and users. There could be a negative impact to outfitters relative to quality of the hunt and success of harvest. However, this would not be significant.

Overall, there would be a significant positive impact to recreation opportunities and quality.

From Access to BLM Land

Alternative A (Current): BLM would acquire access for administrative purposes, for authorized users and for the general public. There would be little or no change in recreation use.

Figures indicate recreation use on BLM land will increase 2% per year while BLM has gained access to only one or two additional blocks yearly. This could have a slightly negative impact. There may not be enough legal access available to BLM land to meet the long-term demand. This could create additional recreation and landowner conflicts and lessen the recreational experience. If the demand for

recreation is met elsewhere, there could be a loss of visitors on BLM land.

Alternative B: There would be no management emphasis on gaining additional access which could create negative impacts by concentrating recreationists in areas that do have legal access. The quality of recreation would be lessened.

Alternative C: Acquiring new access to blocks of BLM land could increase recreation use by 2,300 visits or 3%. The Judith RA would absorb 1,400 visits, the Phillips RA 700 visits and the Valley RA 200 visits. This alternative would enhance the quality of dispersed recreation by providing additional opportunities on BLM land.

Alternatives D & E (Preferred): Additional access could create an estimated 11% increase in recreation use or 9,600 recreation visits. Of this increase, 2,300 visits would occur on lands with no current legal access and 7,300 visits would occur on lands that currently have at least some legal access. The Judith RA would absorb 5,800 visits, the Phillips RA 2,900 visits and the Valley RA 900 visits.

The planning area would benefit from increased recreation opportunities such as hunting, hiking, sightseeing, driving for pleasure, week-end excursions and picnicking. This alternative would enhance the quality of recreation by increasing the opportunities to participate in dispersed recreation activities on BLM land.

From Off-Road Vehicle Designations

Alternative A (Current): The opportunities for off-road travel would not change while the demand for ORV use, walk-in hunting and other hunting is expected to increase. This could create the potential for recreation and landowner conflicts and lessen the recreational experience; a negative impact.

Alternative B: The opportunities for off-road travel by hunters and others would increase; a positive impact. There would also be a decrease in opportunities for hunters who enjoy walk-in hunting because of increased motorized vehicle disturbance; a negative impact.

An increase in off-road travel could create the potential for recreation and landowner conflicts. These could decrease the recreation opportunities in some areas, if landowners control and restrict access to BLM land.

Alternative C: The opportunities for off-road travel by hunters and others would decrease; a negative impact. There would also be an increase in opportunities for hunters who enjoy walk-in hunting because of less motorized vehicle disturbance. The quality of recreation for walk-in hunters would be significantly enhanced; a positive impact.

An intensive ORV use area in the Valley RA would provide opportunities for off-road races and rallies; a positive impact.

A decrease in off-road travel could lessen the potential for recreation and landowner conflicts in some areas. This could increase the opportunities in some areas if landowners allow additional access to BLM land; a positive impact.

Alternative D: The opportunities for off-road travel during the big game hunting season would decrease. This would be a significant negative impact for some hunters. The opportunities for off-road travel by non-hunters would also decrease in this alternative; a negative impact. Hunters and others who enjoy off-road travel may start using other areas. There would be a significant increase in opportunities for hunters who enjoy walk-in hunting because of less motorized vehicle disturbance; a positive impact. An intensive ORV use area in the Valley RA would provide opportunities for off-road races and rallies; a positive impact.

A decrease in off-road travel could lessen the potential for recreation and landowner conflicts in some areas; a positive impact. This could increase the opportunities in some areas, if landowners allow additional access to BLM land; a positive impact.

Alternative E (Preferred): The opportunities for off-road travel by hunters and other recreationists would increase; a positive impact. An intensive ORV use area in the Valley RA would provide opportunities for off-road races and rallies. Other areas for intensive ORV use would be designated as the need arises; positive impacts.

Exceptions in limited areas for camping, game retrieval, snowmobiles and the non-ambulatory handicapped would have a positive impact. Walk in hunting would be enhanced at times during the day when off-road game retrieval is restricted.

From Oil and Gas Leasing and Development

Alternative A (Current): Oil and gas exploration and development activities could have a temporary, negative impact on recreation. Upgrading roads, new road construction and pipeline construction would displace some wildlife and affect hunting activities. The quality of recreation would be lessened by the intrusion of oil and gas activities in some areas. Overall, the impact to recreation would not be significant.

Alternative B: Crucial winter range for elk, deer and bighorn sheep could be negatively impacted by oil and gas activities. Hunting opportunities in these areas could decline. This could have a locally significant negative impact on recreation in some areas.

Oil and gas exploration and development activities could have a temporary, negative impact on recreation activities. The quality of recreation would be lessened by the intrusion of oil and gas activities (upgrading roads, new road construction and pipeline construction).

While oil and gas activities could have a locally significant negative impact in some areas, the overall impact to recreation in the planning area would not be significant.

Alternatives C, D & E (Preferred): The impacts would be the same as those in Alternative A.

From Hardrock Mining

Alternative A (Current): Mining activity in the Little Rocky Mountains has reduced the opportunities for hiking, camping and sightseeing. Additional mining could further impact these activities and discourage use of the Camp Creek and Buffington recreation sites. The quality of dispersed recreation would be lessened as more land is disturbed.

Mining activity in the Judith Mountains has created little impact on dispersed recreation (picnicking, hiking, sightseeing and wildlife viewing). Additional exploration and mine development would be a negative impact to recreation use with increased traffic, noise and road building. Mining could discourage or curtail dispersed recreation use and displace some recreation use to other areas.

Mining activity in the North Moccasin and Little Belt Mountains has created little impact on recreation on BLM land. However, recreation opportunities on nearby private land have decreased due to mining. Additional mining on public land could adversely impact recreation on BLM land.

Alternative B: Additional mining in the Little Rocky Mountains could decrease recreation activities such as hiking, camping and sightseeing. The quality of dispersed recreation would be lessened as more land is disturbed.

Revoking the withdrawals in the Little Rocky Mountains could create significant negative impacts by allowing mine development to the edge of the Camp Creek and Buffington recreation sites. Mining activities would increase noise and discourage or curtail use of these recreation sites.

The impacts to recreation in the Judith, Moccasin and Little Belt Mountains would be the same as those in Alternative A.

Alternative C: Additional mining in the Little Rocky Mountains could decrease general recreation activities such as hiking, camping and sightseeing. The quality of dispersed recreation would be lessened as more land is disturbed.

Revoking the withdrawal for the Landusky recreation site would have no effect on current recreation sites.

Additional mining in the Judith Mountains would have a negative impact on dispersed recreation (picnicking, hiking, sightseeing and wildlife viewing) from increased traffic, noise and road building. Mining could discourage or curtail dispersed recreation use and displace some recreation use to other areas. Recreation would not be impacted to the same degree in the Collar Gulch and Judith Mountains Scenic Area ACECs because of the protection afforded by designation.

The impacts to recreation in the Moccasin and Little Belt Mountains would be the same as those in Alternative A.

Alternative D: Maintaining the withdrawals in the Little Rocky Mountains would protect the existing recreation sites; a positive impact. A protective withdrawal for bighorn sheep habitat in the southern portion of the Little Rocky Mountains would provide dispersed recreation opportunities; a positive impact. Additional mining in other areas in the Little Rocky Mountains could decrease general recreation activities such as hiking, camping and sightseeing; a negative impact.

A protective withdrawal in the Judith Mountains would maintain dispersed recreation opportunities by limiting disturbance, noise and traffic; a positive impact.

The impacts to recreation in the Moccasin and Little Belt Mountains would be the same as those in Alternative A.

Alternative E (Preferred): Revoking the withdrawals for Judith Peak, Red Mountain and the Landusky Recreation Site would have a minor negative effect on recreation. Continuing the withdrawals on the Blacktail Fossil Site, Azure Cave, and Camp Creek Campground would protect the recreation values; a positive impact.

Management prescriptions/mitigating measures that would be applied to Plans of Operations would increase protection of recreation values and potential recreation values in the Judith Mountains Scenic Area ACEC, elk habitat in the Judith and North Moccasin Mountains and bighorn sheep habitat in the Little Rocky Mountains; a positive impact.

The impacts to recreation in other portions of the Judith and North Moccasin Mountains would be the same as Alternative A.

From Riparian and Wetland Management of Watersheds

Alternative A (Current): There would be a slight increase in recreation use associated with wildlife viewing and no impact on waterfowl hunting in the planning area. The

majority of ducks and geese produced on islands and reservoirs are harvested outside the planning area. Hunting associated with this waterfowl production is of national significance. Nearly 261,100 ducks and 27,000 geese would be produced, providing an estimated 58,000 visits for waterfowl hunting in states south of Montana.

Alternative B: There would be no impact to waterfowl hunting in the planning area, but a significant positive impact outside of the area. An estimated 191,000 ducks and 19,800 geese would be produced on islands and ponds, providing approximately 42,000 visits for waterfowl hunting in states south of Montana.

Increased waterfowl production would increase opportunities for wildlife viewing in the planning area.

Alternative C: There would be no impact to hunting in the planning area, but a significant positive impact outside of the area. The majority of ducks and geese are harvested in other states south of Montana. Nearly 309,900 ducks and 32,100 geese would be produced on islands and ponds. This would provide approximately 68,000 visits for hunting waterfowl in states south of Montana.

Increased waterfowl production would increase opportunities for wildlife viewing in the planning area.

Alternative D: There would be no impact to waterfowl hunting in the planning area, but a significant positive impact outside of the area. An estimated 333,500 ducks and 34,600 geese would be produced on islands and ponds. This would provide approximately 74,000 visits for hunting waterfowl in states south of Montana.

Increased waterfowl production would increase opportunities for wildlife viewing in the planning area.

Alternative E (Preferred): There would be no impact to waterfowl hunting in the planning area, but a significant positive impact outside of the area. Nearly 319,100 ducks and 30,400 geese would be produced on islands and ponds. This would provide approximately 65,000 visits for waterfowl hunting in states south of Montana.

Increased waterfowl production would increase opportunities for wildlife viewing in the planning area.

From Elk and Bighorn Sheep Habitat Management

Alternative A (Current): Expanding elk and bighorn sheep habitat would increase the opportunities for wildlife viewing. Hunting opportunities on BLM land could increase, but would depend on MDFWP raising harvest limits to meet new elk and bighorn sheep hunting opportunities.

Alternative B: Maintaining elk and bighorn sheep habitat would have no effect on the opportunities of wildlife viewing and hunting.

Alternatives C, D & E (Preferred): The impacts would be the same as those in Alternative A.

From Prairie Dog and Black-Footed Ferret Management

Alternative A (Current): Eliminating 10,013 acres of prairie dog towns would decrease wildlife viewing opportunities for associate species (mountain plover, burrowing owl, and ferruginous hawk); a negative impact. The opportunity for viewing black-footed ferrets, prairie dogs and associate species would increase within the reintroduction area (3,308 acres); a positive impact.

Currently about 300 people each year spend an average of 4 days each shooting prairie dogs on BLM land. Under this alternative there would be a 100% loss of prairie dog shooting opportunities; a significant negative impact.

Alternative B: Eliminating 6,859 acres of prairie dog towns would decrease wildlife viewing opportunities for associate species; a negative impact. The opportunity for viewing black-footed ferrets, prairie dogs and associate species would increase within the reintroduction area 6,462 acres; a positive impact.

There would be a 50% loss of prairie dog shooting opportunities on BLM land from eliminating prairie dog towns. Recreation use would decrease by 150 visits; a significant negative impact.

In the long term, there could be an increase in wildlife viewing and prairie dog shooting with the potential acquisition of prairie dog towns.

Alternative C: Eliminating 1,330 acres of prairie dog towns would decrease wildlife viewing opportunities for associate species; a negative impact. The opportunity for viewing black-footed ferrets, prairie dogs and associate species would increase within the reintroduction area (7,367 acres); a positive impact.

Until ferret reintroduction occurs, there would be a 9% loss of prairie dog shooting opportunities on BLM land from eliminating prairie dog towns. After ferret reintroduction occurs, there would be a 62% loss of prairie dog shooting opportunities. Recreation use would decrease by 190 visits; a significant negative impact.

In the long term, there could be an increase in wildlife viewing and prairie dog shooting with the potential acquisition of prairie dog towns.

Alternative D: The opportunity for viewing black-footed ferrets, prairie dogs and associate species would increase within the reintroduction area (12,105 acres); a positive impact.

Until ferret reintroduction occurs, there would be no change in prairie dog shooting opportunities. After ferret reintroduction occurs, there could be a 86% loss of prairie dog shooting opportunities. Recreation use could decrease by 260 visits; a significant negative impact.

In the long term, there would be an increase in wildlife viewing and prairie dog shooting opportunities from expanding prairie dog towns on BLM land. Recreation use could increase 380 visits with shooting opportunities above the current level; a significant positive impact.

Alternative E (Preferred): The opportunity for viewing black-footed ferrets, prairie dogs and associate species would increase within the reintroduction area (12,346 acres); a positive impact.

Prairie dog shooting would be allowed, unless impacts from shooting are shown to be detrimental to the black-footed ferret. This alternative could have an effect on prairie dog shooting opportunities on BLM land.

From the Judith Mountains Scenic Area

Alternatives A (Current) & B: There would be little or no impact to the general recreation use in the area. A negative impact to sightseeing and hiking in the Judith and South Moccasin Mountains could result from noise, traffic and road building associated with mining.

Alternatives C & D: There would be little or no impact to dispersed recreation use. The quality of some recreation activities (sightseeing and hiking) would be maintained by protecting the scenic quality; a positive impact.

Alternative E (Preferred): BLM would designate 3,702 acres an ACEC (Judith Mountains Scenic Area) to protect scenic, wildlife and recreation values. A negative impact to sightseeing and hiking in the South Moccasin Mountains could result from noise, traffic and road building associated with mining. The quality of some recreation activities (sightseeing and hiking) in the Judith Mountains Scenic Area ACEC would be somewhat maintained by protecting the scenic quality; a positive impact.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to recreation.

From The Square Butte ONA ACEC

Alternative A (Current): No impact to recreation.

Alternative B: Terminating the CMU Classification could decrease recreation use by opening the area to mining claim location.

Alternatives C, D & E (Preferred): Acquiring land would provide more opportunities for recreation on Square Butte and improve the quality of hiking and sightseeing. Legal access to the Butte would increase visitor use. Acquisition and access could double visitor use from 800 annual visits to 1600 visits, a significant positive impact.

From the Collar Gulch ACEC

Alternatives A (Current) & B: Disturbances associated with mining activities could reduce wildlife viewing, sightseeing and hiking opportunities; a negative impact.

Alternatives C & D: Restricting surface disturbing activities would maintain the quality of and increase the opportunity for recreation in the area; a positive impact.

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From the Azure Cave ACEC

Alternative A (Current): Not allowing admittance to the cave would be a negative impact to some recreationists.

Alternative B: Revoking the protective withdrawal could create a negative impact on the cave resources, if mining occurred. A significant increase in recreation use would occur in the short term. However, there would be a potential risk to public safety. Cave resources could receive substantial damage with no control of or restrictions on visitors. Over a period of time, the attractiveness of the cave resource could diminish, resulting in a decrease in visitors.

Alternative C: This alternative would provide a significant increase in the opportunity for recreation use, but the overall quality could decrease in the long term. A concessionaire could maximize recreation use, but there is no demand for developed cave activities. The interest is in exploring wild caves or undeveloped areas.

Alternative D: Allowing cave use by a permit system would create a moderate increase in recreation opportunities. The opportunity for access, by permit, would improve the availability of the cave for the public to explore.

Alternative E (Preferred): Allowing access to the cave could create a moderate increase in the opportunity for

recreation use. Specific impacts to recreation would be addressed during development of the activity plan.

From the Big Bend of the Milk River ACEC

Alternatives A (Current) & B: Opportunities to interpret cultural resources would be lost; a negative impact.

Alternatives C, D & E (Preferred): There would be a moderate increase in recreation use and an opportunity to develop one site for cultural interpretation. Interpretive panels, a trail system and picnic area would enhance the quality of recreation in the area. There is an opportunity to provide over 10,000 recreation visits (based on the Madison Buffalo Jump west of Bozeman, which is a similar site and receives about 14,000 visits on a yearly basis).

IMPACTS TO VISUAL RESOURCES

From Land Acquisition and Disposal

Alternatives A (Current), B, C, D & E (Preferred): Disposing of BLM land could result in some visual impairment. Various intrusions could be constructed and land use practices could change. Acquiring land would aid in maintaining visual qualities. The potential for visual impairment would be reduced in these areas and some existing visual intrusions could also be reclaimed which would enhance the visual qualities. Overall, there would be a positive impact on visual resources.

From Access to BLM Land

Alternative A (Current): Acquiring access for the general public and authorized users could deteriorate visual qualities, depending on the frequency, type of use and location. The impacts would be less in areas with ORV restrictions. Overall, the impacts would be minor.

Alternative B: No impact to visual resources.

Alternatives C, D & E (Preferred): The impacts would be the same as those in Alternative A.

From Off-Road Vehicle Designations

Alternative A (Current): Unrestricted ORV use on 2,375,440 acres would have a negative impact by lowering the visual quality of the natural landscape. New trails could be created by off-road travel, especially during hunting season. The visual qualities would decline as a result.

The Square Butte ONA ACEC would be closed to ORV use which would protect the visual quality of this area; a positive impact.

ORV use in the WSAs would be restricted yearlong to designated roads and trails which would protect visual qualities; a positive impact.

Alternative B: Unrestricted ORV use on 2,687,570 BLM acres would create impacts similar to those in Alternative A.

The Square Butte ONA ACEC would be closed to ORV use which would protect the visual quality of the area; a positive impact.

ORV use in the WSAs would be restricted yearlong to designated roads and trails which would protect visual qualities; a positive impact.

Alternative C: Unrestricted ORV use on 1,818,437 acres would create impacts similar to those in Alternative A.

The Square Butte ONA would be closed yearlong to ORV use which would protect the visual quality of the area; a positive impact.

ORV use in the WSAs would be restricted yearlong to designated roads and trails which would protect visual qualities; a positive impact.

Vehicle travel would be limited to designated roads and trails on 983,915 BLM acres from September 1 to December 1. This would protect visual qualities; a positive impact.

Alternative D: Restricting off-road travel seasonally or yearlong on all BLM land would be a significant positive impact. The visual quality would improve as a result.

The Square Butte ONA ACEC, Rock Creek Canyon area, Collar Gulch ACEC and Acid Shale-Pine Forest (War Horse) ACEC would be closed to ORV use. The visual quality of these areas would be protected; a positive impact. ORV use in the WSAs would be restricted yearlong to designated roads and trails which would protect visual qualities; a positive impact.

Alternative E (Preferred): The Square Butte ONA ACEC would be closed to ORV use; a positive impact.

ORV use in the WSAs would be restricted yearlong to designated roads and trails which would protect visual qualities; a positive impact.

Unrestricted ORV use on 1,990,501 BLM acres would lower the visual quality of the natural landscape. New trails would be created by off-road travel, especially during hunting season and the visual quality in these areas would

decline as a result. Restricting ORV use on 813,709 BLM acres would protect and maintain the visual quality in those areas; a positive impact.

From Oil and Gas Leasing and Development

Alternatives A (Current), B, C, D & E (Preferred): In general, exploration, development and production would affect line, form, color and texture of the natural landscape in oil and gas fields. Impacts from seismic activity would be short term. Although there would be temporary negative impacts from new well production in producing areas, the long-term impacts would be minimal. This is due to the localized nature of oil and gas development and production, the temporary nature of disturbing activities, reclamation requirements, VRM requirements or the No Surface Occupancy restrictions.

The impacts would vary slightly among alternatives, but would not be significant.

From Hardrock Mining

Alternative A (Current) & B: Mining exploration and development would continue in the Little Rocky, Judith, North and South Moccasin and Little Belt Mountains. Mining activities would affect the line, form, color and texture of the natural landscape and create the potential for deteriorated visual qualities. Some of these activities would cause long-term or permanent changes in the natural landscape. Mitigation measures would help minimize some of the adverse impacts.

Table 4.14 shows the VRM classes and projected acres of disturbance for the various mountain ranges

TABLE 4.14 PROJECTED BLM ACRES OF DISTURBANCE FROM HARDROCK MINING BY VRM CLASS						
Mountain Range	VRM Class	Alternative				
		A	B	C	D	E
Little Rockys	II	930	930	930	810	930
Judiths	II	300	300	220	45	220
Moccasins	III	140	140	120	70	120
Little Belts	III	60	60	60	60	60

Source: BLM, 1990

Significant negative impacts could occur in the Little Rocky, Judith and Moccasin Mountains because of the visual qualities (VRM Class II) and the acreage disturbed. Visual quality would deteriorate in these areas as new mining activities occur.

Alternative C: Mining exploration and development would be expected in the Little Rocky, Judith, North and South Moccasin and the Little Belt Mountains. The potential exists for some deterioration of visual quality in these areas. Special mitigating measures would be implemented to protect scenic qualities in the South Moccasin and Judith Mountains during the project permitting process; a positive impact. Table 4.14 shows the VRM classes and projected acres of disturbance for the various mountain ranges.

BLM would continue most existing withdrawals and pursue a withdrawal on the Square Butte ONA. This would protect the visual qualities in these specific areas; a positive impact.

Alternative D: BLM would continue current withdrawals and pursue seven additional withdrawals. Table 4.14 shows the VRM classes and projected acres of disturbance for the various mountain ranges.

This alternative would be extremely beneficial to visual resources. The protection afforded by withdrawals from mining activities would significantly protect the visual quality in these specific areas. Of notable importance would be the protection of the scenic qualities in the South Moccasin and Judith Mountains.

Alternative E (Preferred): Mining exploration and development would be expected in the Little Rocky, Judith, North and South Moccasin and the Little Belt Mountains. The potential exists for some deterioration of visual quality in these areas. Mining activities would affect the line, form, color and texture of the natural landscape. Some of these activities would cause long-term or permanent changes in the natural landscape. With the exception of extreme circumstances, specific management prescriptions would help to maintain the visual integrity and scenic qualities in the Judith Mountains Scenic Area ACEC.

Table 4.14 shows the VRM classes, and projected acres of disturbance for the various mountain ranges.

This alternative would be beneficial to the visual resources in the planning area. The protection afforded from mining activities by withdrawals and the special management prescriptions would enhance and/or protect the visual quality in these specific areas; a regionally significant positive impact.

From Riparian and Wetland Management of Watersheds

Alternatives A (Current), B, C, D & E (Preferred): Management prescriptions and other actions that improve and protect riparian-wetland areas would enhance the visual qualities. Maintaining riparian-wetland areas would have no impact on visual quality.

From Elk and Bighorn Sheep Habitat Management

Alternatives A (Current), B, C, D & E (Preferred): No impacts to visual resources.

From Prairie Dog and Black-Footed Ferret Management

Alternatives A (Current), B, C, D & E (Preferred): On a site-specific basis, there would be a minor positive impact by eliminating prairie dog towns. Soils would stabilize and range conditions would improve. A minor negative impact would occur where prairie dog towns are maintained. Soils and vegetation would remain disturbed which would be in contrast with the surrounding area. Overall, there would be little or no impact to the visual qualities.

From the Judith Mountains Scenic Area

Alternatives A (Current) & B: The scenic quality could be significantly impacted in this area without visual resource protection. Surface disturbing activities would affect the line, form, color and texture of the natural landscape. The potential for deteriorated scenic qualities exists from mining claim location, exploration and development. Mining activities could cause long-term or permanent changes in the natural landscape.

Alternative C: BLM would designate 4,566 BLM acres an ACEC to protect the scenic qualities in the Judith and South Moccasin Mountains. These lands would be managed to protect the area from surface disturbing activities. This would protect the visual resources.

Alternative D: BLM would designate 4,566 BLM acres an ACEC to protect the scenic qualities in the Judith and South Moccasin Mountains. These lands would be withdrawn from mining claim location to protect the area from surface disturbing activities.

This would be a significant positive impact by protecting the visual resources.

Alternative E (Preferred): BLM would designate 3,702 acres an ACEC to protect scenic, wildlife and recreation values in the Judith Mountains. Management prescriptions on Plans of Operations within this area would help in the protection of the visual quality from surface disturbing activities; a positive impact.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impacts to visual resources.

From the Square Butte ONA ACEC

Alternative A (Current): Designating 1,947 acres as an ACEC, the ORV closure and the management prescriptions would maintain the visual quality of Square Butte and the surrounding area. The area would remain segregated from mineral entry; a positive impact.

Alternative B: The impacts would be similar to those in Alternative A, except the area would be open to mineral entry. This could be a negative impact to visual resources.

Alternative C: The ORV closure and implementing management prescriptions would maintain the visual quality of Square Butte and the surrounding area. The area would be withdrawn from mining claim location. This would protect the visual quality of Square Butte; a positive impact.

Alternative D: Designating 1,947 BLM acres as an ACEC, the ORV closure and implementing management prescriptions would maintain the visual quality of Square Butte and the surrounding area. The area would be withdrawn from mining claim location. This would protect the visual quality of Square Butte; a positive impact.

Alternative E (Preferred): Designating 1,947 BLM acres as an ACEC, the ORV closure, implementing management prescriptions and acquiring additional land would protect and maintain the visual quality of Square Butte and the surrounding area. The area would be withdrawn from mining claim location which would protect the visual quality of Square Butte; a positive impact.

From the Collar Gulch ACEC

Alternatives A (Current) & B: The visual quality of the area could deteriorate; a significant negative impact.

Alternative C: Designating 1,160 BLM acres as an ACEC and implementing management prescriptions would maintain the visual quality of the area; a positive impact.

Alternative D: Designating 1,618 BLM acres as an ACEC and the subsequent withdrawal would protect and maintain the visual quality of the area; a positive impact.

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From the Azure Cave ACEC

Alternative A (Current): No impacts to visual resources.

Alternative B: There could be a negative impact to the cave area with few or no restrictions and/or management prescriptions. The visual quality would begin to deteriorate.

Alternatives C & D: The visual quality of Azure Cave and the surrounding 479 BLM acres would be maintained by the ACEC designation and specific management prescriptions; a positive impact.

Alternative E (Preferred): The visual quality of Azure Cave and the surrounding 140 BLM acres would be protected and maintained by the ACEC designation, specific management prescriptions and the withdrawal from mining claim location and mineral leasing; a positive impact.

From the Big Bend of the Milk River ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impacts to visual resources.

IMPACTS TO ECONOMIC CONDITIONS

From Land Acquisition and Disposal

Alternatives A (Current), B, C & D: Disposal of 166,021 acres could decrease BLM land by 6% in the planning area; 10% in the Judith RA, 3% in the Valley RA, and 6% in the Phillips RA (see Table 4.15). Based on previous BLM land exchanges, state and county land holdings could increase nearly 7%, while private land could increase by 1%.

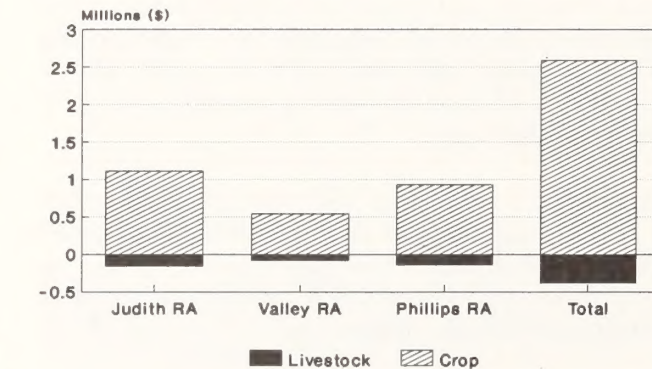
TABLE 4.15
LAND DISPOSAL SUMMARY

Resource Area and County	Acres Identified For Disposal	% of total BLM Acres	% of Total Land Surface
Judith RA			
Chouteau	6,024	0.9 %	0.10 %
Judith Basin	2,406	0.3 %	0.04 %
Fergus	42,491	6.1 %	0.71 %
Petroleum	17,410	2.5 %	0.29 %
Subtotal	68,331	9.7 %	1.14 %
Valley RA			
Valley	34,089	3.3 %	1.26 %
Phillips RA			
Phillips	63,601	5.9 %	1.95 %
Total	166,021	5.9 %	1.39 %

Source: BLM, 1990

Total economic activity in the planning area could increase \$2.2 million, due to an increase in crop production (\$2.6 million) and a decrease in livestock production (\$384,000) (see Figure 4.1). This assumes that 41% of the BLM acres identified for disposal could be converted from native prairie vegetation or crested wheatgrass to dryland farming. In the Judith RA, economic activity could increase \$1.1 million from crop production and decrease \$160,000 from livestock production. In the Phillips RA, economic activity could increase \$932,000 from crop production and decrease \$140,000 from livestock production. In the Valley RA, economic activity could increase \$544,000 from crop production and decrease \$84,000 from livestock production. These impacts would not be significant in relation to total output for all sectors of the planning area, nor would the increase be significant for the agricultural sector in the planning area. There could be additional impacts to economic activity if lands are acquired by BLM through exchange. Impacts would depend on the values for which the land is acquired.

FIGURE 4.1
Total Economic Benefit Change
Land Acquisition/Disposal

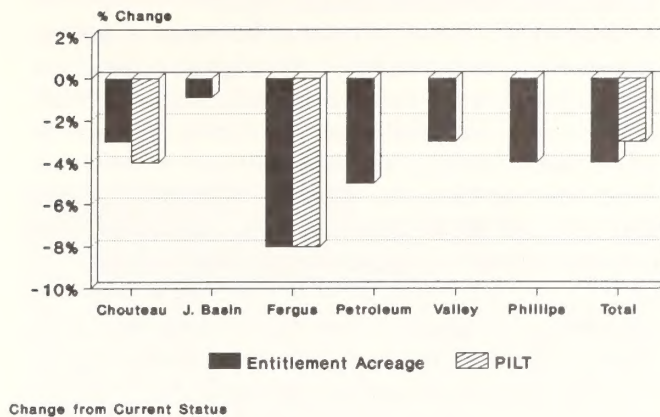


Change from Current Conditions

Total annual employment could increase by 35 jobs, primarily due to increases in crop production; this increase includes employment from both direct and secondary spending and would not be significant.

Disposal could result in a decrease in Payments-in-Lieu-of Taxes (PILT) of \$31,000 per year, or 3%. This decline is due to a 4% decrease in Chouteau County (\$5,000) and an 8% decrease in Fergus County (\$26,000). The other counties are not expected to experience changes in PILT since they have reached the ceiling limits used for PILT calculations. Acquisition of land through exchange could offset decreases in PILT resulting from disposal in some counties. Figure 4.2 shows, by county, the comparison between changes in PILT and changes in entitlement acres.

FIGURE 4.2
PILT and Entitlement Acreage
Change by County



Change from Current Status

Increases in private agricultural land could raise taxable valuation for the six counties in the planning area. The increase in annual property-tax revenues resulting from disposal of BLM land could be \$61,000.

Overall, increases in property-tax revenues could more than offset the decreases in PILT, resulting in a net increase of \$30,000 in annual tax revenues in the planning area. However, in Fergus County there could be a net decrease in annual tax revenues of \$3,000 because property tax increases would not completely offset the decrease in PILT. Table 4.16 summarizes the changes in PILT and property tax revenues.

Resource Area and County	Change in PILT	Change in Property Tax	Net Change in Revenue
Judith RA			
Chouteau	\$< 5,000>	\$5,000	\$0
Judith Basin	0	1,000	1,000
Fergus	<26,000>	23,000	<3,000>
Petroleum	0	4,000	4,000
Subtotal	\$<31,000>	\$33,000	\$2,000
Valley RA			
Valley	0	\$14,000	\$14,000
Phillips RA			
Phillips	0	\$14,000	\$14,000
Total	\$<31,000>	\$61,000	\$30,000

Source: BLM, 1990

Alternative E (Preferred): The economic impacts from disposing of 161,968 acres would be similar to Alternative A. The only measurable difference is in Chouteau County, where PILT could decline \$4,000 (rather than \$5,000). Thus, the net increase in annual tax revenues in the planning area could be \$31,000 (rather than \$30,000) (see Table 4.17).

Resource Area and County	Change in PILT	Change in Property Tax	Net Change in Revenue
Judith RA			
Chouteau	\$< 4,000>	\$5,000	\$1,000
Judith Basin	0	1,000	1,000
Fergus	<26,000>	23,000	<3,000>
Petroleum	0	4,000	4,000
Subtotal	\$<30,000>	\$33,000	\$3,000
Valley RA			
Valley	0	\$14,000	\$14,000
Phillips RA			
Phillips	0	\$14,000	\$14,000
Total	\$<30,000>	\$61,000	\$31,000

Source: BLM, 1990

From Access to BLM Land

Alternative A (Current): Future demand for recreation opportunities may be greater than the increase in supply that results from additional access to BLM land. The potential exists in the long-term for overuse of current recreational areas if demand for recreation on BLM land increases in the planning area. If the quality of recreation declines from overuse, thus decreasing recreation use of BLM land, there could be a negative impact on regional economic activity which would be felt primarily in the retail trade and services sectors.

Alternative B: The impacts would be similar to Alternative A, except that no new access would be pursued, leading to potentially greater negative economic impacts to regional economic activity.

Alternative C: Acquiring access would increase recreation opportunities in the long-term. Annual total economic benefit, which includes total economic activity and net willingness to pay, could increase by \$383,000. Annual total economic activity would increase by \$267,000, primarily in the retail trade and services sectors. The increase

would not be significant in relation to total output in the planning area; however, the increase would be significant for the Judith RA, where economic activity attributable to BLM land is estimated to increase \$160,000, or 5%. Increases in the Valley and Phillips RAs, \$43,000 and \$65,000 respectively, would not be significant. Net willingness to pay for recreation opportunities would contribute \$115,000 to the total increase in economic benefit in the planning area.

Some of the increase in recreation opportunities could be hunting that currently may be occurring on private land. To the extent that this hunting activity is transferred to BLM land due to increased access, full implementation of this alternative would not generate the economic impact estimated. Rather, the current level of economic activity attributable to hunting on private land could merely be transferred to BLM land.

Total annual employment could increase by seven jobs in the planning area, primarily in the retail trade and services sectors. This increase would not be significant.

Alternatives D & E (Preferred): The economic impacts would be similar to Alternative C, except that annual total economic benefit is estimated to increase \$1.6 million due to increased recreation opportunities. Annual total economic activity would increase by \$1.1 million, primarily in the retail trade and services sectors. The increase would not be significant in relation to total output in the planning area; however, in terms of economic activity attributable to recreation on BLM land, this represents a 13% increase which is significant. The increase would be significant for each resource area as well: Judith RA \$667,000 (19%); Valley RA \$183,000 (11%); and Phillips RA \$279,000 (7%). Net willingness to pay for recreation opportunities would contribute \$484,000 to the total increase in economic benefit in the planning area.

Some of the increase in recreation opportunities could be hunting that currently may be occurring on private land. To the extent that this hunting activity is transferred to BLM land due to increased access, full implementation of this alternative would not generate the economic impact estimated. Rather, the current level of economic activity attributable to hunting on private land could merely be transferred to BLM land.

Total annual employment could increase 28 jobs in the planning area, primarily in the retail trade and services sectors. This increase would not be significant.

From Off-Road Vehicle Designations

Alternative A (Current): Although there may be a shift in the type of hunting activity occurring on BLM land to relatively more walk-in hunting, the impacts to economic conditions in the planning area would be negligible.

Alternative B: Although there would be potential for increased economic activity from off-road travel hunting and decreased potential from walk-in hunting, the impacts to economic conditions in the planning area would be negligible.

Alternative C: The impacts would be similar to those in Alternative A, except BLM would designate an intensive ORV use area in the Valley RA. This designation could contribute to an increase in economic activity, although the impact would be negligible since most users would likely come from the local area. No off-road travel for game retrieval during the big game hunting season could reduce economic activity associated with big game hunting.

Alternative D: The impacts would be similar to Alternative C, except that off-road travel for game retrieval during the big game hunting season would be allowed.

Alternative E (Preferred): The impacts would be similar to Alternative C, except that off-road travel for game retrieval during the big game hunting season would be allowed.

From Oil and Gas Leasing and Development

Alternatives A (Current), B & C: There would no significant impacts to economic conditions. However, a new oil or gas discovery would increase economic activity in the short-term during field development and in the long-term during production. Unless a major discovery occurs, development activity would be on a small scale and would not cause significant impacts. Production revenue would also increase regional economic activity, primarily in the petroleum and natural gas extraction, construction and transportation sectors. Additionally, there may be a negligible increase in employment but, again, this would depend on the size of the discovery.

Alternative D: Leasing restrictions could reduce the level of exploration occurring on federal land anticipated by the oil and gas RFD scenario (see Appendix B). Consequently, economic activity related to exploratory drilling on federal leases could potentially be foregone. In addition, leasing restrictions could lead to a decrease in federal leases, resulting in a decrease in federal rents and royalties paid. On the other hand, if exploration occurs at anticipated levels on nonfederal leases, there may be no impact to the regional economy.

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From Hardrock Mining

Alternatives A (Current) & B: Based on the RFD in Appendix C is estimated that 70 exploration projects could

be undertaken in Fergus and Judith Basin Counties and 40 in Phillips County. In the Judith RA, exploration activity could result in the development of ten additional mining operations; five could be small underground operations in the Judith Mountains, two could be small open-pit heap-leach operations and one could be a large open pit operation in the same area, and two could be small open-pit heap-leach operations in the North and South Moccasin Mountains. In the Phillips RA, exploration activity could result in the development of eight additional mining operations in the Little Rocky Mountains, including the current Zortman and Landusky mines. These would most likely be open-pit, heap-leach operations, most of which could be expansions of existing mines, rather than entirely new operations.

A typical exploration project would cost \$200,000, of which \$40,000 may be expected to be spent in the planning area (see Appendix C). Exploration activity could increase total economic benefit \$5.2 million in the Judith RA and \$3 million in the Phillips RA, a total of \$8.2 million over the life of the plan. Of the estimated \$8.2 million, \$4.4 million would be direct expenditures primarily in the construction and services sectors with an additional \$3.8 million in secondary spending. It is estimated that about 25 exploration projects are currently underway or nearly completed. The level of exploration activity projected would not represent a significant increase with respect to regional economic activity. Exploration activity in the Judith and Phillips RAs could increase total annual employment over the life of the plan by up to eight jobs. This would not be a significant increase in employment at the regional or county level.

New mining operations would have a significant impact on the area's economic activity, employment, population, and tax revenues, during both the construction and production phases. The impacts may be long-term, depending on the size of the operation, and the ability to maintain operations and expand. The timing, size, and location would determine the magnitude of the impacts to the area's economy. These factors, as well as the inherent uncertainty of future economic conditions, make it speculative at best to estimate when the operations projected might be developed. Accordingly, it would be impossible to assess specific impacts with any degree of accuracy. However, a maximum possible development scenario for mineral development is presented here to illustrate the potential magnitude of impacts. Appendix C describes three hypothetical operations that could reasonably be expected to occur in the planning area.

In the Phillips RA, an additional eight mining operations projected for the Little Rocky Mountains could increase peak employment in the mining industry by 600 jobs in the foreseeable future if these operations were to come online concurrent with the Zortman-Landusky mines. If all new jobs were filled by non-local labor, the population could increase by 1,500 people at peak employment as new workers and their families move into the area, a significant

increase of 28% over the 1988 estimated Phillips RA population of 5,400. It is likely, however, that for the foreseeable future the local labor pool, primarily from Phillips County and the Fort Belknap Indian Reservation, would continue to fill a significant portion of new jobs created by the mining industry in the Little Rocky Mountains.

In the Judith RA, an additional 10 mining operations projected for the Judith, North Moccasin, and South Moccasin Mountains could increase peak employment by 800 jobs in the foreseeable future if all operations were at some future point online simultaneously. This could potentially increase the Judith RA population by 2,000, an increase of 12% over the 1988 estimated population of 16,650 (assuming all new employment is filled by non-local labor). Most of this increase likely would be felt in Fergus County. As with employment in the Little Rocky Mountains, it is likely that, for the foreseeable future, the local labor pool would continue to fill a significant portion of new mining industry jobs.

The projected peak employment and population impacts would increase employment opportunities as well as reverse long-term trends in population decline in the region. There could be a significant increase in economic activity in the planning area and increased tax revenues in the counties where mining operations are located. The impacts to economic activity would result from increases in regional expenditures by mining operations as well as indirect impacts from secondary spending activity. Taxable valuation would increase due to the construction of mining facilities, leading to an increase in property-tax revenues when operations come online. Other state tax revenues generated during the production phase would come from the Gross Proceeds Tax, Metal Mines License Tax, and the Resource Indemnity Trust Tax.

Alternative C: For the Phillips RA, the regional economic impacts from hardrock exploration and development would be the same as those in Alternative A. For the Judith RA, the impacts would be similar to those of Alternative A, except that the magnitude of the impacts would not be as great, due to a lesser degree of exploration and development. The following description of impacts pertains to the Judith RA.

It is estimated that 60 exploration projects could be undertaken in Fergus and Judith Basin Counties and 10 exploration projects could be foregone. Exploration activity could result in the development of seven additional mining operations, four could be small underground operations in the Judith Mountains, two could be small open-pit heap-leach operations in the same area, and one could be a small open-pit heap-leach operation in the North Moccasin Mountains. Three potential mining operations could be foregone based on the RFD, one small open-pit operation and one large open pit in the South Moccasin-Judith Mountains Scenic Area and one underground operation in the Collar Gulch ACEC.

Exploration activity could increase total economic benefit \$4.5 million in the Judith RA and an estimated \$700,000 in potential economic activity could be foregone. Of the estimated \$4.5 million, \$2.4 million would be direct expenditures primarily in the construction and services sectors with an additional \$2.1 million in secondary spending. This level of exploration would not represent a significant increase with respect to regional economic activity. Exploration activity in the Judith and Phillips RAs combined could increase total employment over the life of the plan by up to seven jobs. This would not be a significant increase in employment at the regional and county levels.

An additional seven mining operations projected for the Judith and the North Moccasin Mountains could increase peak employment by 500 jobs in the foreseeable future if all operations were at some future point online simultaneously. Potential long-term employment opportunities lost are estimated to total about 100 for the foregone operations in the South Moccasin-Judith Mountains Scenic Area and Collar Gulch ACECs. The estimated increase in employment could potentially increase the Judith RA population by 1,200, a significant increase of 7% over the 1988 estimated population of 16,650 (assuming all new employment is filled by non-local labor). Most of this increase would be felt in Fergus County. It is likely, however, that for the foreseeable future, the local labor pool would continue to fill a significant portion of new jobs created by the mining industry.

The projected peak employment and population impacts would increase employment opportunities as well as reverse long-term trends in population decline in the region. There could be a significant increase in economic activity in the planning area and increased tax revenues in the counties where mining operations are located. The impacts to economic activity would result from increases in regional expenditures by mining operations as well as indirect impacts from secondary spending activity. Taxable valuation would increase due to the construction of mining facilities, leading to an increase in property-tax revenues when operations come online. Other tax revenues generated during the production phase would come from the Gross Proceeds Tax, Metal Mines License Tax, and the Resource Indemnity Trust Tax.

Alternative D: For both the Judith and Phillips RAs, the impacts would be similar to those of Alternative A, except that the magnitude of the impacts would not be as great, due to a much lower level of exploration and development. It is estimated that 27 exploration projects could be undertaken in Fergus and Judith Basin Counties; 43 exploration projects could be foregone. In the Phillips RA 24 exploration projects could be undertaken; 16 could be foregone.

In the Judith RA, exploration activity could result in the development of five additional mining operations, three could be small underground operations in the Judith

Mountains, one could be a small open-pit heap-leach operation in the same area, and one could be a small open-pit heap-leach operation in the North Moccasin Mountains.

In the Phillips RA, exploration activity could result in the development of six additional mining operations in the Little Rocky Mountains. These would most likely be open-pit, heap-leach operations, most of which could be expansions of existing mines, rather than entirely new operations.

Seven potential mining operations could be foregone due to withdrawals of land from mining claim location. One small open-pit mine, one large open pit mine and one underground mine in the South Moccasin-Judith Mountains Scenic Area, one underground mine in the Collar Gulch ACEC, two open-pit mines due to withdrawal for elk and bighorn sheep habitat in the Little Rocky Mountains, and one small open-pit mine in the Judith Mountains.

Exploration activity could increase total economic benefit \$2 million in the Judith RA and \$1.8 million in the Phillips RA, a total of \$3.8 million over the life of the plan; an estimated \$4.4 million in potential economic activity could be foregone. Of the estimated \$3.8 million, \$2 million would be direct expenditures primarily in the construction and services sectors with an additional \$1.8 million in secondary spending. This level of exploration would not represent a significant increase with respect to regional economic activity. Exploration activity in the Judith and Phillips RAs could increase total employment over the life of the plan by up to four jobs. This would not be a significant increase in employment at the regional and county levels.

In the Phillips RA, an additional six mining operations projected for the Little Rocky Mountains could increase peak employment in the mining industry by over 400 jobs in the foreseeable future if these operations were to come online concurrent with the decline in current operations at the Zortman-Landusky mines. Potential long-term employment opportunities lost are estimated to total about 150 for the foregone operations in the Little Rocky Mountains. If all new jobs were filled by non-local labor, the population could increase by 1,100 people at peak employment as new workers and their families move into the area, a significant increase of 20% over the 1988 estimated population of 5,400. It is likely, however, that for the foreseeable future the local labor pool, primarily from Phillips County and the Fort Belknap Indian Reservation, would continue to fill a significant portion of new jobs created by the mining industry in the Little Rocky Mountains.

In the Judith RA, an additional five mining operations projected for the Judith and North Moccasin Mountains could increase peak employment by 300 jobs in the foreseeable future if all operations were at some future point online simultaneously. Potential long-term employment opportunities lost are estimated to total about

200 for the foregone operations. The estimated increase in employment could potentially increase the Judith RA population by 700, a marginally significant increase of 4% over the 1988 estimated population of 16,650 (assuming all new employment is filled by non-local labor). Although a marginally significant increase for the Judith RA as a whole, most of the increase would likely be felt in Fergus County and would create significant impacts there. As with employment in the Little Rocky Mountains, it is likely that, for the foreseeable future, the local labor pool would continue to fill a significant portion of new mining industry jobs.

The projected peak employment and population impacts would increase employment opportunities as well as reverse long-term trends in population decline in the region. There could be a significant increase in economic activity in the planning area and increased tax revenues in the counties where mining operations are located. The impacts to economic activity would result from increases in regional expenditures by mining operations as well as indirect impacts from secondary spending activity. Taxable valuation would increase due to the construction of mining facilities, leading to an increase in property-tax revenues when operations come online. Other tax revenues generated during the production phase would come from the Gross Proceeds Tax, Metal Mines License Tax, and the Resource Indemnity Trust Tax.

Validity exams would be performed on claims in the South Moccasin-Judith Mountains Scenic Area and Collar Gulch ACECs. Based on historical levels of exploration and other surface-disturbing activities, 35 validity exams could be performed over the life of this plan. Assuming a cost of \$12,500 for a typical exam, this could result in an increase in BLM management costs of \$437,500, primarily for labor, travel, equipment and other administrative expenses (see Table 4.18).

TABLE 4.18
VALIDITY EXAMINATIONS

Location	# of Exams	Total Cost
Collar Gulch ACEC	5	\$62,500
South Moccasin-Judith Mountains	5	62,500
Hwys 191 & 87 Scenic Area	25	312,500
Total	35	\$437,500

Source: BLM, 1990

Based on the development potential of the areas subject to validity examinations some mining claims could be valid, that is, there is a discovery of a valuable mineral deposit. A process of evaluating the mineral deposit to estimate the probable costs of mining and returns gained through sale of

the commodity must first be completed and, following that, a determination would be made regarding the fair market value of the deposit. The fair market value represents the cost BLM would incur to prevent development of the deposit. If conditions lead to consideration of purchasing valid mining claims, an analysis would be performed to access the fair market value of the deposit.

Alternative E (Preferred): The regional economic impacts would be similar to Alternative A, except that one open-pit mining operation (of the 18 operations projected) could potentially be foregone in the Judith Mountains Scenic Area ACEC; however, the probability of such an impact occurring is not definite. Consequently, there may be only minor impacts to potential future opportunities for economic activity from mineral development (see Impacts to Economic Conditions from the Judith Mountains Scenic Area ACEC).

From Riparian and Wetland Management of Watersheds

Alternative A (Current): Annual total economic benefit, which includes total economic activity and net willingness to pay, could increase \$2.3 million in the planning area. This includes economic activity attributable to increased livestock production (\$548,000 in the Judith RA, \$962,000 in the Valley RA, and \$779,000 in the Phillips RA) and increased waterfowl production (\$16,000 in the recreation sector). Net willingness to pay for recreation opportunities would contribute \$20,000 to total economic benefit. In relation to total output for these sectors, the increase would not be significant.

Economic activity would increase outside the planning area, including the Central Flyway Region, where an estimated 95% of the waterfowl hunting opportunities, as well as most viewing opportunities, would occur. Direct expenditures in the recreation sector are estimated to increase \$221,000 annually. Including \$382,000 for net willingness to pay, total economic benefit would increase \$603,000 annually. Because it is not known precisely where this recreation would occur, estimates of secondary spending impacts could not be obtained.

Management costs could increase for both BLM and affected ranching operations. Over the life of the plan expenditures could total \$22.4 million (\$21 million for BLM and \$1.4 million for ranching operations). Costs would be incurred for such construction projects as nesting islands, reservoirs, land treatments, and enclosure fences. These expenditures could result in an increase in total economic activity of \$30 million in the planning area. The increase in costs for affected operations would, in most cases, be offset by improved livestock productivity.

Total annual employment in the planning area would increase over the life of the plan by an equivalent of 80 jobs; 38 would be attributable to changes in annual livestock

production and 42 would be attributable to management costs. These employment impacts would not be significant.

Property-tax revenues would increase as a result of changes in livestock production, although the increase would not be significant. Estimated increases for each resource area are: Judith \$1,900; Valley \$3,700; and Phillips \$2,200.

Alternative B: The regional economic impacts would be similar to Alternative A, with some quantitative differences. Annual total economic benefit could increase \$1.7 million. This includes economic activity attributable to increased livestock production (\$245,000 in the Judith RA, \$865,000 in the Valley RA, and \$521,000 in the Phillips RA) and increased waterfowl production (\$12,000 in the recreation sector). Net willingness to pay for recreation opportunities would contribute \$15,000 to total economic benefit. In relation to total output for these sectors, the increase would not be significant.

Economic activity would increase outside the planning area, including the Central Flyway Region, where an estimated 95% of the waterfowl hunting opportunities, as well as most viewing opportunities, would occur. Direct expenditures in the recreation sector are estimated to increase \$162,000 annually. Including \$280,000 for net willingness to pay, total economic benefit would increase \$442,000 annually. Because it is not known precisely where this recreation would occur, estimates of secondary spending impacts could not be obtained.

Management costs could increase for both BLM and affected ranching operations. Over the life of the plan expenditures could total \$14 million (\$13 million for BLM and \$800,000 for ranching operations). Costs would be incurred for such construction projects as nesting islands, reservoirs, land treatments, and enclosure fences. These expenditures could result in an increase in total economic activity of \$19 million in the planning area. The increase in costs for affected ranch operations would not be met by increases in livestock productivity; thus, there would be little economic benefit from riparian and wetland management practices to the affected permittees.

Total annual employment in the planning area would increase over the life of the plan by an equivalent of 52 jobs; 27 would be attributable to changes in annual livestock production and 25 would be attributable to management costs. These employment impacts would not be significant.

Property-tax revenues would increase as a result of changes in livestock production, although the increase would not be significant. Estimated increases for each resource area are: Judith, \$800; Valley \$3,300; and Phillips, \$1,400.

Alternative C: The regional economic impacts would be similar to Alternative A, with some quantitative differences. Annual total economic benefit could increase \$2,704,000.

This includes economic activity attributable to increased livestock production (\$559,000 in the Judith RA, \$1 million in the Valley RA, and \$1.1 million in the Phillips RA) and increased waterfowl production (\$18,000 in the recreation sector). Net willingness to pay for recreation opportunities would contribute \$24,000 to total economic benefit. In relation to total output for these sectors, the increase would not be significant.

Economic activity would increase outside the planning area including the Central Flyway Region, where an estimated 95% of the waterfowl hunting opportunities, as well as most viewing opportunities, would occur. Direct expenditures in the recreation sector are estimated to increase \$262,000 annually. Including \$453,000 for net willingness to pay, total economic benefit would increase \$715,000 annually. Because it is not known precisely where this recreation would occur, estimates of secondary spending impacts could not be obtained.

Management costs could increase for both BLM and affected ranching operations. Over the life of the plan expenditures could total \$26.2 million (\$23.7 million for BLM and \$2.5 million for ranching operations). Costs would be incurred for such construction projects as nesting islands, reservoirs, land treatments, and enclosure fences. These expenditures could result in an increase in total economic activity of \$35.3 million in the planning area. The increase in costs for affected ranch operations would, in most cases, be offset by improved livestock productivity.

Total annual employment in the planning area would increase over the life of the plan by an equivalent of 93 jobs; 43 would be attributable to changes in annual livestock production, and 50 would be attributable to management costs. These employment impacts would not be significant.

Property-tax revenues would increase as a result of changes in livestock production, although the increase would not be significant. Estimated increases for each resource area are: Judith, \$1,900; Valley \$4,000; and Phillips, \$2,900.

Alternative D: Economic activity associated with livestock production would not change since any increase in AUMs would not be allocated to livestock. Annual total economic benefit would increase in the planning area \$46,000 due to increases in recreation opportunities from waterfowl production. This increase includes economic activity, primarily in the retail trade and services sectors, estimated to be \$20,000. Net willingness to pay for recreation opportunities would contribute \$26,000 to total economic benefit. In relation to total output for these sectors, the increase would not be significant.

Economic activity would increase outside the planning area, including the Central Flyway Region, where an estimated 95% of the waterfowl hunting opportunities, as well as most viewing opportunities, would occur. Direct

expenditures in the recreation sector are estimated to increase \$282,000 annually. Including \$488,000 for net willingness to pay, total economic benefit would increase \$788,000 annually. Because it is not known precisely where this recreation would occur, estimates of secondary spending impacts could not be obtained.

Management costs could increase for both BLM and affected ranching operations. Over the life of the plan expenditures could total \$29.1 million (\$26 million for BLM and \$3.1 million for ranching operations). Costs would be incurred for such construction projects as nesting islands, reservoirs, land treatments, and enclosure fences. These expenditures could result in an increase in total economic activity of \$39 million in the planning area. The increase in costs for affected ranch operations would, in most cases, be offset by improved livestock productivity.

Total annual employment in the planning area would increase over the life of the plan by an equivalent of 54 jobs, virtually all attributable to the increase in management costs. These employment impacts would not be significant.

Alternative E (Preferred): The regional economic impacts would be similar to Alternative D, with some quantitative differences. Annual total economic benefit would increase \$39,000 due to increases in recreation opportunities from waterfowl production. This increase includes economic activity, primarily in the retail trade and services sectors, estimated to be \$17,000. Net willingness to pay for recreation opportunities would contribute \$22,000 to total economic benefit. Economic activity associated with livestock production may increase, but cannot be estimated since the allocation of any increase in AUMs would be on a case-by-case basis with improvement in riparian-wetland areas. In relation to total output for these sectors, the increase would not be significant.

Economic activity would increase outside the planning area, including the Central Flyway Region, where an estimated 95% of the waterfowl hunting opportunities, as well as most viewing opportunities, would occur. Direct expenditures in the recreation sector are estimated to increase \$242,000 annually. Including \$417,000 for net willingness to pay, total economic benefit would increase \$659,000 annually. Because it is not known precisely where this recreation would occur, estimates of secondary spending impacts could not be obtained.

Management costs could increase for both BLM and affected ranching operations. Over the life of the plan expenditures could total \$23.5 million (\$21.4 million for BLM and \$2.1 million for ranching operations). Costs would be incurred for such construction projects as nesting islands, reservoirs, land treatments, and enclosure fences. These expenditures could result in an increase in total economic activity of \$31.4 million in the planning area. The increase in costs for affected operations would, in most cases, be offset by improved livestock productivity.

Total annual employment in the planning area would increase over the life of the plan by an equivalent of 41 jobs, virtually all attributable to the increase in management costs. These employment impacts would not be significant.

From Elk and Bighorn Sheep Habitat Management

Alternative A (Current): Overall there would be no significant impacts to economic conditions in the planning area. If elk and bighorn sheep harvest levels decline in order to facilitate expansion, there may be some short-term decreases in economic activity associated with decreased hunting opportunities, primarily in the Judith RA. In the long-term, expansion may result in an increase in harvest levels. Thus, regional economic activity associated with hunting could return to its former level or increase. In the long-term, there may be an increase in economic activity attributable to non-consumptive recreation opportunities, such as wildlife viewing, if elk and bighorn sheep populations expand. Changes in hunting activity, for the most part, would be contingent upon harvest levels set by the MDFWP, regardless of the amount of habitat available on BLM land.

Alternative B: Overall there would be no significant impacts to economic conditions in the planning area. If elk and bighorn sheep harvest levels increase in order to limit expansion, there may be some short-term increases in economic activity associated with increased hunting opportunities, primarily in the Judith RA. In the long-term, harvest levels may return to their former levels. Thus, long-term regional economic activity associated with hunting would return its former level or fall below its former level as hunting activity declines. Economic activity attributable to non-consumptive recreation opportunities, such as wildlife viewing, would not change significantly over current conditions if elk and bighorn sheep populations may not expand. Changes in hunting activity would, for the most part, be contingent upon harvest levels set by the MDFWP, regardless of the amount of habitat available on BLM land.

Alternative C: The impacts would be the same as those in Alternative A.

Alternative D: The impacts would be similar to those in Alternative A regarding recreation-related economic activity. Additionally, restrictions on mineral development could preclude potential development of two open-pit mining operations in the Little Rocky Mountains, potentially reduce long-term employment opportunities by an estimated 150 jobs as well as mining-related regional economic activity and tax revenues (see Impacts to Economic Conditions from Hardrock Mining).

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From Prairie Dog and Black-Footed Ferret Management

Alternative A (Current): In the Phillips RA, annual total economic benefit would decrease in the short-term by \$572,000. This decline is attributable to the elimination of prairie dog shooting (\$352,000) and from losses of livestock production (\$135,000) due to a loss in AUMs in the short-term. Net willingness to pay, attributable to the elimination of prairie dog shooting, would decrease \$84,000. These declines would not be significant in relation to total output; however, losses resulting from the elimination of prairie dog shooting would be significant, representing a 9% decline in economic activity that is attributable to recreation opportunities available on BLM land. Prairie dog shooting opportunities available outside the Phillips RA, such as in the Valley RA, may increase economic activity in other communities if shooters relocate to other areas.

In the long-term, AUMs would be restored, returning livestock production to its previous level. A decline in annual economic benefit due to the elimination of prairie dog shooting would persist, resulting in a long-term decline of \$436,000. There could be a loss of potential future economic activity due to restrictions on oil and gas exploration in the area. Increases in wildlife viewing opportunities in the long-term may increase total economic benefit in the Phillips RA, potentially offsetting the decline resulting from losses of prairie dog shooting opportunities and potential losses from oil and gas restrictions.

Management costs related to prairie dog control and black-footed ferret reintroduction in the Phillips RA would total \$454,000 in the short-term. These costs would be incurred on a one-time basis only. The increase in total economic activity attributable to these costs would be \$594,000, including direct and secondary spending impacts.

BLM annual management costs would total \$98,000 for prairie dog control and ferret reintroduction. These costs would be incurred both in the short and long-term. The estimated increase in total economic activity attributable to these costs would be \$131,000, including direct and secondary spending impacts. Table 4.19 summarizes these one-time and annual costs.

In the short-term, total annual employment could increase in the Phillips RA by up to four jobs, attributable to increased short term expenditures (12 jobs), the loss of prairie dog shooting (six lost jobs) and the decline in livestock production (two lost jobs). In the long term, there would be a decrease in annual employment of four jobs, resulting from the loss of prairie dog shooting (six lost jobs) and an increase in employment associated with federal expenditures (two jobs).

Alternative B: In the Phillips RA, annual total economic benefit would decrease by \$217,000. This decline is attributable to the reduction of acreage available for prairie dog shooting. Total economic activity in the retail trade and services sectors would decline \$175,000. Net willingness to pay attributable to the loss of shooting opportunities would decrease \$42,000. This decline would not be significant, representing a 4% decline in economic activity that is attributable to recreation opportunities available on BLM land. Prairie dog shooting opportunities available outside the Phillips RA, such as in the Valley RA, may increase economic activity in other communities if shooters relocate to other areas. Increases in wildlife-viewing opportunities in the long-term may increase regional economic activity in the Phillips RA, potentially offsetting the decline resulting for losses of prairie dog shooting opportunities.

BLM management costs related to prairie dog control and black-footed ferret reintroduction in the Phillips RA would total \$122,000 in the short-term. These costs would be incurred on a one-time basis only. The increase in total economic activity attributable to these costs would be \$163,000, including direct and secondary spending impacts.

BLM annual management costs would total \$95,000 for prairie-dog control and ferret reintroduction. These costs would be incurred both in the short and long-term. The estimated increase in total economic activity attributable to these costs would be \$127,000, including direct and secondary spending impacts. Table 4.19 summarizes these one-time and annual costs.

In the short-term, total annual employment would increase in the Phillips RA by two jobs; increased expenditures by BLM in the planning area could create up to five jobs, offset by a decrease of three jobs attributable to reductions in prairie dog shooting opportunities. In the long-term there would be a net loss of one job; increased expenditures by BLM would generate two jobs, offset by a loss of three jobs due to reductions in prairie dog shooting.

Alternative C: The regional economic impacts would be similar to Alternative A. In the Phillips RA, annual total economic benefit would decrease in the short-term by \$341,000. This decline is attributable to the reduction of acreage available for prairie dog shooting (\$228,000) and from losses of livestock production (\$58,000) due to a loss in AUMs in the short-term. Net willingness to pay, attributable to the loss of shooting opportunities, would decrease \$55,000. These declines would not be significant in relation to total output; however, declines resulting from the loss of shooting opportunities would be significant, representing a 6% decline in economic activity that is attributable to shooting opportunities available on BLM land. Prairie dog shooting opportunities available outside the Phillips RA, such as in the Valley RA, may increase economic activity in other communities if shooters relocate to other areas.

TABLE 4.19
PRAIRIE DOG AND BLACK-FOOTED FERRET MANAGEMENT COSTS

One-Time Costs	Alternative				
	A	B	C	D	E
Federal					
Prairie Dog Elimination	\$139,000	\$92,000	\$18,000	\$0	\$0
Ferret Reintroduction	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
Land Treatment	\$285,000	\$0	\$120,000	\$465,000	\$98,430*
Subtotal	\$454,000	\$122,000	\$168,000	\$495,000	\$128,430
Rancher					
Prairie Dog Elimination	NA	NA	NA	NA	\$58,210**
Total One-Time Costs	\$454,000	\$122,000	\$168,000	\$495,000	\$186,640
Annual Costs					
Federal					
Prairie Dog Control	\$8,000	\$5,000	\$18,000	\$24,000	\$18,500***
Ferret Reintroduction	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
Total Annual Costs	\$98,000	\$95,000	\$108,000	\$114,000	\$108,500

*These costs would be incurred to compensate for prairie dog control on private land. Assumes a potential 5,821 private acres could be controlled or eliminated, leading to land treatments on 6,562 acres of BLM land. Estimated cost \$15/acre, total cost \$98,430.

**Assumes all prairie dog towns on private land would be controlled or eliminated; estimated cost \$10/acre on 5,821 acres.

***Prairie dog towns on BLM land would be controlled at the 1988 level. Assuming a 3 to 15% expansion of towns, the annual control costs could range from \$3,700 to \$18,500. This is based on monitoring from 1981 through 1988 and an estimated control cost of \$10/acre.

Source: BLM, 1990

In the long-term, AUMs would be restored, returning livestock production to its previous level. However, the decline in annual economic benefit would persist due to the loss of shooting opportunities, resulting in a long-term decline of \$283,000. Increases in wildlife viewing opportunities in the long-term may increase total economic benefit in the Phillips RA, potentially offsetting the decline resulting from losses of prairie dog shooting opportunities.

Management costs related to prairie dog control and black-footed ferret reintroduction in the Phillips RA would total \$168,000 in the short-term. These costs would be incurred on a one-time basis only. The increase in total economic activity attributable to these costs would be \$255,000, including direct and secondary spending impacts.

BLM annual management costs would total \$108,000 for prairie-dog control and ferret reintroduction. These costs would be incurred both in the short and long-term. The estimated increase in total economic activity attributable to these costs would be \$145,000, including direct and secondary spending impacts. Table 4.19 summarizes these one-time and annual costs.

In the short-term, annual employment could increase in the Phillips RA by up to two jobs, attributable to increased expenditures by BLM (seven jobs), the loss of shooting opportunities (four lost jobs), and the decline in livestock production (one lost job). In the long-term, there would be a decrease in annual employment of 1 job, resulting from the loss of shooting opportunities (four lost jobs) and an increase in employment associated with federal expenditures (three jobs).

Alternative D: In the Phillips RA, annual total economic benefit would decrease in the short-term by \$477,000. This decline is attributable to the reduction of acreage available for prairie dog shooting (\$321,000) and from losses of livestock production (\$78,000) due to a loss in AUMs in the short-term. Net willingness to pay, attributable to the loss of shooting opportunities, would decrease \$78,000. These declines would not be significant in relation to total output; however, declines resulting from the loss of shooting opportunities would be significant, representing a 6% decline in economic activity that is attributable to prairie dog shooting opportunities available on BLM land. Prairie dog shooting opportunities available outside the Phillips RA,

such as in the Judith and Valley RAs, may increase economic activity in other communities if shooters relocate to other areas.

In the long-term, AUMs would be restored, returning livestock production to its previous level. In addition, economic activity associated with prairie dog shooting could increase as the acreage available for shooting increases in the long-term. Assuming a 15% annual rate of prairie dog expansion, it would take about 15 years to restore the shooting opportunities to the current level. Increases in wildlife viewing opportunities in the long-term may further increase total economic benefit in the Phillips RA.

Management costs related to prairie dog control and black-footed ferret reintroduction in the Phillips RA would total \$495,000 in the short-term. These costs would be incurred on a one-time basis only. The increase in total economic activity attributable to these costs would be \$663,000, including direct and secondary spending impacts.

BLM annual management costs would total \$114,000 for prairie-dog control and ferret reintroduction. These costs would be incurred both in the short-term and long-term. The estimated increase in total economic activity attributable to these costs would be \$153,000, including direct and secondary spending impacts. Table 4.19 summarizes these one-time and annual costs.

In the short-term, total annual employment would increase in the Phillips RA by up to eight jobs, attributable to increased expenditures by BLM (15 jobs), the loss of shooting opportunities (six lost jobs), and the decline in livestock production (one lost job). In the long-term, there would be an increase in annual employment of three jobs, resulting from an increase in employment associated with federal expenditures.

Alternative E (Preferred): There would be no impact to economic conditions in the Phillips RA, with the exception of management costs. Costs related to prairie dog control and black-footed ferret reintroduction could increase \$187,000 in the short-term for both BLM (\$128,000) and ranching operations (\$58,000). These costs would be incurred on a one-time basis only. The increase in total economic activity would be \$250,000, including direct and secondary spending impacts.

BLM annual management costs could total \$109,000 for prairie dog control and ferret reintroduction. These costs would be incurred both in the short and long-term. The increase in total economic activity would be \$145,000, including direct and secondary spending impacts. Table 4.19 summarizes these one-time and annual costs. These expenditures could increase employment in the Phillips RA by up to seven jobs in the short-term and three jobs in the long-term.

From the Judith Mountains Scenic Area ACEC

Alternatives A (Current) & B: There could be significant impacts to economic conditions in the Judith RA if mineral development occurs. Mineral exploration and development could conflict with, and reduce, recreation use of the area, thus potentially reducing economic activity in the retail trade and services sectors that benefit from recreation use of BLM land. Economic activity associated with mineral exploration and development could, however, offset the potential decline in recreation employment and expenditures.

Alternative C: Restrictions on mineral development could significantly reduce potential future economic activity associated with mineral exploration and development, such as regional expenditures, employment, and tax revenues, especially in Fergus County. It is estimated that these restrictions could preclude potential development of one small open-pit mining operation and one large open-pit operation of the type described in Appendix C, potentially reducing long-term employment opportunities by an estimated 95 jobs. Impacts are summarized in Table 4.20 and the Impacts to Economic Conditions from Hardrock Mining Section. These restrictions may encourage more recreation use of the area, thus increasing economic activity in the retail trade and services sectors that benefit most from recreation expenditures, although to what degree recreational employment and expenditures would offset potentially foregone mining employment and expenditures is unknown.

Alternative D: The impacts to economic conditions would be similar to Alternative C, except that economic activity associated with mineral exploration and development may be more limited. The withdrawal could significantly reduce potential future economic activity associated with mineral exploration and development, such as regional expenditures, employment, and tax revenues, especially in Fergus County. It is estimated that these restrictions could preclude potential development of two open-pit mining operations and one underground operation of the type described in Appendix C, potentially reducing long-term employment opportunities by an estimated 150 jobs. Impacts are summarized in Table 4.21 and the Impacts to Economic Conditions from Hardrock Mining Section. Validity exams would be performed on claims in the ACEC and BLM would pursue purchase of valid mining claims. Restrictions may encourage more recreation use of the area, thus increasing economic activity in the retail trade and services sectors that benefit most from recreation expenditures, although to what degree recreational employment and expenditures would offset potentially foregone mining employment and expenditures is unknown.

Alternative E (Preferred): There could be a significant increase in economic activity and employment in the Judith RA if mineral development occurs. There is a possibility that future Plans of Operations submitted for mineral development in the Scenic Area ACEC may not conform

TABLE 4.20
POSSIBLE ECONOMIC ACTIVITY FOREGONE IN THE SCENIC AREA ACEC
ALTERNATIVE C

	Foregone Annual Impacts			Total Foregone Over 6 Yr Prod.*
	Each Operation		Both Operations	
	Small Open Pit	Large Open Pit		
Capital Investment (one time)	\$7,500,000	\$18,000,000	\$25,500,000	\$25,500,000
Gross Revenue	\$2,900,000	\$14,600,000	\$17,500,000	\$105,000,000
Operating Costs	\$1,167,000	\$6,667,000	\$7,834,000	\$47,004,000
Jobs (Construction-1 yr)	100	100	200	200
Jobs (Production)	25	70	95	95
Total Wages	\$872,500	\$2,443,000	\$3,315,500	\$19,893,000
Tax Revenues:				
Resource Indemnity	\$14,500	\$73,000	\$87,500	\$525,000
Gross Proceeds	\$26,363	\$69,559	\$95,922	\$575,532
Metalliferous Mines License	\$38,160	\$206,640	\$244,800	\$1,468,800
Property	\$101,197	\$169,072	\$270,269	\$1,621,614
Total	\$180,220	\$518,271	\$698,491	\$4,190,946

*Production period for both operations is estimated at 6 years.

TABLE 4.21
POSSIBLE ECONOMIC ACTIVITY FOREGONE IN THE SCENIC AREA ACEC
ALTERNATIVE D

	Foregone Annual Impacts			Foregone Annual - All Operations	Total Foregone Over Production
	Small Open Pit	Large Open Pit	Underground		
Capital Investment (one time)	\$7,500,000	\$18,000,000	\$2,300,000	\$27,800,000	\$27,800,000
Gross Revenue	\$2,900,000	\$14,600,000	\$3,575,000	\$21,075,000	\$133,600,000
Operating Costs	\$1,167,000	\$6,667,000	\$2,250,000	\$10,084,000	\$65,004,000
Jobs (Construction-1 yr)	100	100	100	300	300
Jobs (Production)	25	70	55	150	150
Total Wages	\$872,500	\$2,443,000	\$1,919,500	\$5,235,000	\$35,249,000
Tax Revenues:					
Resource Indemnity	\$14,500	\$73,000	\$17,875	\$105,375	\$668,000
Gross Proceeds	\$26,363	\$69,559	\$32,499	\$128,421	\$835,524
Metalliferous Mines License	\$38,160	\$206,640	\$54,164	\$298,964	\$1,902,112
Property	\$101,197	\$169,072	\$54,101	\$324,370	\$2,054,422
Total	\$180,220	\$518,271	\$158,639	\$857,130	\$5,460,058

*Production period is 6 years for open pit operations and 8 years for underground operation.

with the management objectives under this alternative. This would depend upon specific factors related to the ore deposit and scenic quality. Under worst-case conditions, the restrictions could restrict potential development of a large open pit operation similar to the type described in Appendix C; potentially reducing opportunities for long-term employment, regional expenditures and tax revenues. Table 4.22 summarizes the capital investment, expenditures, employment, income and tax revenues that could potentially

be foregone if development were restricted; however, the probability of such an impact occurring is not definite. Under less than worst-case conditions, there may be only minor impacts to potential future opportunities for employment, regional expenditures, and tax revenues from mineral development. Impacts to Economic Conditions from Hardrock Mining Section. The effects on economic activity from recreation would depend on the location and extent of mineral development.

TABLE 4.22
POSSIBLE ECONOMIC ACTIVITY FOREGONE IN THE
SCENIC AREA ACEC
ALTERNATIVE E

	Average Annual Foregone Impacts*	Total Foregone Over 6 Yr Production**
Capital Investment (one time)	\$18,000,000	\$18,000,000
Gross Revenue	\$14,600,000	\$87,600,000
Operating Costs	\$6,667,000	\$40,002,000
Jobs (Construction-1 yr)	100	100
Jobs (Production)	70	70
Total Wages	\$2,443,000	\$14,658,000
Tax Revenues:		
Resource Indemnity	\$73,000	\$438,000
Gross Proceeds	\$69,559	\$417,354
Metalliferous Mines License	\$206,640	\$1,239,840
Property	\$169,072	\$1,014,432
Total	\$518,271	\$3,109,626

*Assumes one open-pit operation is foregone.

**Production period is estimated at 6 years.

From the Acid Shale-Pine Forest ACEC

Alternatives A (Current), B & C: There would be no significant impacts to economic conditions.

Alternative D: There would be no significant impacts to economic conditions. However, because the area has high occurrence potential for bentonite resources, there could be a loss of potential future economic activity associated with bentonite if the area is withdrawn from mineral entry. In addition, it is estimated that total economic activity would decrease \$8,000 due to the loss of AUMs in the area; this decline would be felt in Petroleum County.

Alternative E (Preferred): There would be no significant impacts to economic conditions.

From the Square Butte ONA ACEC

Alternative A (Current): There would be no significant impacts to economic conditions. However, there could be a loss of opportunities for future economic activity associated with oil and gas exploration because the area would be closed to leasing.

Alternative B: There would be no significant impacts to economic conditions in the planning area. However, there

could be an increase in economic activity associated with oil and gas exploration as the area would be open to leasing. If this activity were to conflict with recreation opportunities, there could be a reduction in economic activity in the retail trade and services sectors that benefit from recreation use of BLM land.

Alternatives C, D & E (Preferred): There would be no significant impacts to economic conditions. However, there would be a slight increase in both the quantity and quality of recreation opportunities. Annual total economic benefit could increase \$88,000 due to increased recreation use. Total economic activity would increase \$78,000, primarily in retail trade and services in the Judith RA, while net willingness to pay would contribute \$10,000 to the increase in economic benefit. Employment could increase by two jobs due to the increase in recreation expenditures.

From the Collar Gulch ACEC

Alternatives A (Current) & B: There could be significant impacts to economic conditions in the Judith RA if mineral development occurs. Mineral exploration and development could conflict with, and reduce, recreation use of the area, thus potentially reducing economic activity in the retail trade and services sectors that benefit from recreation use of BLM land. Economic activity associated with mineral exploration and development could, however, offset the potential decline in recreation employment and expenditures.

Alternative C: Restrictions on mineral development could significantly reduce potential future economic activity associated with mineral exploration and development, such as regional expenditures, employment, and tax revenues, especially in Fergus County. It is estimated that these restrictions could preclude potential development of a small underground mining operation of the type described in Appendix C; potentially precluding long-term employment opportunities by an estimated 55 jobs (see Impacts to Economic Conditions from Hardrock Mining). These restrictions may encourage more recreation use of the area, thus increasing economic activity in the retail trade and services sectors that benefit most from recreation expenditures; although to what degree recreation employment and expenditures would offset potentially foregone mining employment and expenditures is unknown.

Alternative D: The impacts to economic conditions would be similar to Alternative C, except validity exams would be performed on claims in Collar Gulch and BLM would pursue purchase of valid mining claims (see Impacts to Economic Conditions from Hardrock Mining).

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From Azure Cave ACEC

Alternative A (Current): There would be no significant impacts to economic conditions. However, there could be a loss of potential future economic activity associated with mineral exploration and development since areas with high and moderate development potential would remain withdrawn from mineral entry. There could also be a loss of potential future economic activity associated with recreation use of the cave.

Alternative B: There could be a short-term increase in economic activity, primarily in the retail trade and services sectors, due to increased recreation use of the cave. However, increased use could, in the long-term, degrade the cave to the point that recreation use declines, thus negating the short-term increase in economic activity. In the long-term, there would be no significant change in economic conditions attributable to recreation use. Areas with high and moderate mineral development potential would be open to mineral entry, with the potential for future economic activity.

Alternative C: With regard to recreation the impacts would be similar to Alternative B, except that unrestricted use of the cave would not be allowed. Thus, there may not be a decrease in economic activity in the long-term associated with recreation use of the cave. The area would remain withdrawn from mineral entry, precluding potential future economic activity associated with mineral exploration and development.

If BLM were to develop this site for recreational use, direct expenditures could exceed \$100,000. This would generate a short-term increase in economic activity in the Phillips RA, estimated to be \$134,000, including direct expenditures and secondary spending activity. There could also be a short-term increase of three jobs attributable to these expenditures.

Alternatives D & E (Preferred): There would be no significant impacts to economic conditions. However, there may be a slight increase in economic activity in the Phillips RA associated with use of the cave during the summer months when the cave would be open. This increase may be offset by foregone future economic activity associated with mineral exploration and development since areas with high and moderate development potential would remain withdrawn from mineral entry.

From the Big Bend of the Milk River ACEC

Alternatives A (Current) & B: There would be no significant impacts to economic conditions, although there could be a loss of opportunities for future economic activity associated with recreation use of the area.

Alternative C: Recreation opportunities would increase economic benefit in the Phillips RA. Annual total economic benefit could increase \$646,000. Economic activity would increase \$592,000, primarily in the retail trade and services sectors, while net willingness to pay would contribute \$54,000 to total economic benefit. This increase in economic activity would not be significant in terms of total output in the Phillips RA; however, in terms of economic activity attributable to recreation on BLM land, it represents a significant 13% increase. Total annual employment, attributable to the increase in recreation expenditures, would increase by 10 jobs, most likely in the Phillips RA.

Alternative D: The impacts are similar to those in Alternative C, except a No Surface Occupancy restriction could reduce opportunities for future economic activity and tax revenues associated with leasing, exploration and development.

Alternative E (Preferred): The impacts would be the same as those in Alternative C.

IMPACTS TO SOCIAL CONDITIONS

This section addresses the impacts that would enhance or diminish the social well-being for recreationists, ranchers and the local business community in the planning area. There would be no impact to services or infrastructure in the planning area, except from Hardrock Mining.

From Land Acquisition and Disposal

Alternatives A (Current), B, C, D & E (Preferred): The BLM acres identified for disposal contain approximately 29,000 AUMs which are currently leased to about 450 livestock operations. In most cases, the impact to the social well-being of individual livestock operations from the loss of AUMs would not be significant. Land that is disposed of could be acquired by the current permittee, another individual or by another entity such as county or state government. There could be significant impacts to the management of some livestock operations if land formerly leased from BLM was acquired by someone else, which could decrease social well-being. Uncertainty over whether land will be kept under BLM management or disposed of could create long-term planning problems for ranchers who could not count on future livestock grazing on those BLM lands. This would worsen ongoing concerns with uncertain future conditions, which could decrease social well-being.

In some cases livestock operators with private grazing leases may be affected if land is acquired by BLM and AUMs are reduced. If 115,000 acres were acquired, approximately 3,555 fewer AUMs could be permitted for livestock. The loss of grazing land could have an effect on ranch income and the social well-being of affected ranchers. Small livestock operators have the greatest potential for being affected since changes could effect their standard of living.

The potential loss of AUMs may be perceived with concern because of the effect on the ability to maintain the current ranch lifestyle. Overall, the social well-being could diminish for some ranchers (those who lose land for livestock grazing) and increase for others (those who want and are able to acquire BLM land). However, the social well-being of most area ranchers would not be affected.

The social well-being of recreationists could be enhanced if the problem of private land being closed to the public and restricted access to public land is addressed. These problems cause a loss of recreation opportunities. Recreation is important to the lifestyle needs of residents in the planning area.

The social well-being of some farmers and people associated with some local businesses could be enhanced due to an increase in the standard of living from economic activity associated with crop production in the Phillips RA.

From Access to BLM Land

Alternative A (Current): The social well-being of recreationists would diminish if access is not adequately addressed and recreation quality and opportunities decline. These opportunities are an important part of many residents' lifestyles. The problems of private land being closed to the public and blocked access to public land could continue, causing a loss of recreation opportunities.

Conflicts between ranchers and recreationists could be reduced if access routes to BLM land are signed, restricted travel areas identified and legal access acquired in some areas. However, in cases where access is gained in areas of intermingled land ownership, conflicts could be aggravated where trespass on private land resulted. Overall, this alternative would enhance the social well-being of ranchers where access problems are resolved.

Alternative B: The impacts would be similar to those in Alternative A, except conflicts between ranchers and recreationists would not be reduced. This alternative would not change the social well-being of ranchers.

Alternative C: The social well-being of recreationists would be enhanced because lifestyle needs would be better met due to additional recreation opportunities. This

alternative would address increasing recreation pressure on BLM land caused by closing private land to the public and blocked access to public land.

Conflicts between ranchers and recreationists could be reduced if access routes to BLM land are signed, restricted travel areas identified and legal access acquired in some areas. However, in cases where access is gained in areas of intermingled land ownership, conflicts could be aggravated where trespass on private land resulted. Additional access could cause problems such as open gates and littering. This alternative would enhance the social well-being of ranchers where access problems are resolved and would decrease the social well-being of ranchers where new access created problems such as trespass on private land.

The social well-being of some people associated with local businesses would improve due to an increase in the standard of living from economic activity associated with recreation.

Alternatives D & E (Preferred): The social well-being of recreationists would be enhanced because lifestyle needs would be better met due to additional recreation opportunities. This alternative would address increasing recreation pressure on BLM land caused by private land being closed to the public and blocked access to public land.

Conflicts between ranchers and recreationists could be reduced because access routes to BLM land would be signed, restricted travel areas identified and legal access acquired in most areas. In cases where access is gained in areas of intermingled land ownership, conflicts could be aggravated where trespass on private land resulted. Additional access could cause problems such as open gates and littering. This alternative would enhance the social well-being of ranchers where access problems were resolved and decrease the social well-being of ranchers where new or additional access created problems such as trespass on private land.

The social well-being of people associated with some local businesses would improve due to an increase in the standard of living from economic activity associated with recreation.

From Off-Road Vehicle Designations

Alternatives A (Current) & B: The social well-being of affected ranchers could diminish if problems such as livestock disturbance or forage loss continue. The social well-being of recreationists, particularly hunters, could also diminish if recreation opportunities are not available because of conflicts between ranchers and recreationists.

Alternative C: The social well-being of walk-in hunters and ATV enthusiasts would increase, while the social well-being of others who enjoy off road travel would decline due to a respective change in opportunities. An ATV area would

be provided and walk-in hunting opportunities would be increased, while opportunities to drive off the road to retrieve game would decrease.

The social well-being of affected ranchers would increase if conflicts between ranchers and recreationists are resolved in the most popular hunting areas because problems affecting livestock disturbance or forage loss would decrease.

Alternative D: The social well-being of walk in hunters and those hunters who go off-road only for game retrieval would increase, while the social well-being of those who enjoy off-road travel would diminish due to a respective change in the availability of preferred activities.

The impacts to social well-being of ranchers would be the same as those in Alternative C.

Alternative E (Preferred): The social well-being of ATV enthusiasts and others who enjoy off road travel would increase due to an increase in opportunities for these activities. Vehicle access for game retrieval would be allowed, but may be limited to specific hours. Hunting quality for walk-in hunters could be enhanced during the times vehicle access is limited.

Conflicts between ranchers and recreationists would be reduced in those areas where off-road use would be limited. However, this alternative addresses only some of the popular hunting areas. In other areas (Frenchman Creek and Cottonwood Creek) ORV use could continue to increase, causing livestock disturbance and a loss of forage. Social well-being would be enhanced for those ranchers where problems are resolved and diminish for ranchers where problems continue.

From Oil and Gas Leasing and Development

Alternative A (Current): No impact to social well-being.

Alternative B: The social well-being of recreationists could diminish from impacts to recreation opportunities which are important to their lifestyle needs.

Alternatives C, D & E (Preferred): No impact to social well-being.

From Hardrock Mining

Alternative A (Current): Mining exploration and new development or expansion of 18 mines could create significant impacts to population, infrastructure, social organization and social well-being. There could be

significant negative short-term impacts to housing, schools, police and fire protection, and water and sewer to communities in Fergus and Phillips Counties. In the long term, increased revenues may allow service needs to be met or expanded. Currently, declining populations and a history of mining in the planning area would enhance the ability of local communities to deal successfully with incoming population. Hardrock mining development would provide additional local employment and could reverse historic out migration trends. Mining could affect the numbers and types of local businesses, significantly increasing the social well-being of the local communities. Ongoing declines in the number and diversity of local businesses could be reversed. Specific impacts would depend upon many factors including the current community service and infrastructure capacity, the timing of development and the number and type of nonlocal employees hired. These impacts would be assessed for individual operations prior to approval of a Plan of Operations.

The social well-being of recreationists could diminish if recreation quality and opportunities decrease in the Little Rocky or Judith Mountains.

Some members of the Fort Belknap Indian Reservation are concerned about mining in the Little Rocky Mountains. Their concerns include: potential impacts to water quality and quantity; reservation residents' health; Native American cultural, religious and social practices; wildlife, including fisheries; and air quality. Cyanide waste disposal is a particular concern. The development of eight new mines in the Little Rocky Mountains would generate a great deal of concern. Employment for some reservation residents members could be provided by further mine development.

Alternative B: The impacts would be similar to those in Alternative A, except the social well-being of recreationists who use the Camp Creek and Buffington recreation sites could diminish significantly.

Alternative C: The impacts would be similar to those in Alternative A, except 3 new mines or mine expansions could be foregone; there could be 15 rather than 18 mines expanded or developed.

Alternative D: The impacts would be similar to those in Alternative A, except 7 new mines or mine expansions could be foregone; there could be 11 rather than 18 mines expanded or developed. Impacts to recreationists social well being would be less severe than under Alternative A.

Alternative E (Preferred): The impacts would be similar to those in Alternative A, except 1 new mine or mine expansion could be foregone; there could be 17 rather than 18 mines expanded or developed.

From Riparian and Wetland Management of Watersheds

Alternative A: Approximately 200 ranches would be affected and some permittee costs could increase. The social well-being on some of the 140 ranches with existing AMPs could diminish if their share of the costs of implementation are not offset by increased production. Social well-being would be maintained or increase on most of the 60 ranches where AMPs are proposed because increased management costs would be offset, in most cases, by increased vegetation and livestock productivity.

The increased emphasis on riparian and wetland management, with \$1.3 million in permittee costs over the life of this plan, may be perceived with concern by some area ranchers because they may feel resources would be diverted from the ranching lifestyle.

The social well-being of local recreationists who view wildlife and of waterfowl hunters from outside the planning area would be enhanced because of increased opportunities.

The social well-being of the local business community would be enhanced by increased economic activity and employment which would raise the standard of living of affected individuals.

Alternative B: Approximately 140 ranches would be affected and some permittee costs could increase. Impacts to the 140 ranches with existing AMPs would be the same as those in Alternative A.

The increased emphasis on riparian and wetland management, with \$.8 million in permittee costs over the life of this plan, may be perceived with concern by some area ranchers because they may feel resources would be diverted from the ranching lifestyle.

The impacts to recreationists and the local business communities would be the same as those in Alternative A.

Alternative C: Approximately 300 ranches would be affected and some permittee costs could increase. Impacts to the 140 ranches with existing AMPs would be similar to those in Alternative A, except the allocation of any increases in forage to permittees would be less. Social well-being would be maintained or increase on most of the 160 ranches where AMPs are proposed because increased management costs would be offset, in most cases, by increased vegetation and livestock productivity.

The increased emphasis on riparian and wetland management, with \$2.5 million in permittee costs over the life of this plan, may be perceived with concern by some area ranchers because they may feel resources would be diverted from the ranching lifestyle.

The impacts to recreationists and the local business community would be the same as those in Alternative A.

Alternative D: Approximately 470 ranches would be affected and some permittee costs could increase. Impacts to the 140 ranches with existing AMPs would be similar to those in Alternative A, except any increases in forage would not be allocated to permittees. Social well-being would be maintained on most of the 330 ranches where AMPs are proposed because increased management costs would be offset, in most cases, by livestock productivity.

The increased emphasis on riparian and wetland management, with \$3.1 million in permittee costs over the life of this plan, may be perceived with concern by some area ranchers because they may feel resources would be diverted from the ranching lifestyle.

The impacts to recreationists and the local business community would be the same as those in Alternative A.

Alternative E (Preferred): Approximately 230 ranches would be affected and some permittee costs could increase. Impacts to the 140 ranches with existing AMPs would be similar to those in Alternative A, except any increases in forage would be allocated to permittees on a case-by-case basis. Social well-being would be maintained or increase on most of the 90 ranches where AMPs are proposed because increased management costs would be offset, in most cases, by increased vegetation and/or livestock productivity.

The increased emphasis on riparian and wetland management, with \$2.2 million in permittee costs over the life of this plan, may be perceived with concern by some area ranchers because they may feel resources would be diverted from the ranching lifestyle.

The impacts to recreationists and the local business community would be the same as those in Alternative A.

From Elk and Bighorn Sheep Habitat Management

Alternatives A (Current): The social well-being of affected ranchers could diminish due to conflicts between livestock and elk which could disrupt ranch operations. The social well-being of recreationists would be enhanced because lifestyle needs would be better met with enhanced wildlife viewing and hunting opportunities.

Alternative B: Impacts to ranchers would be the same as Alternative A. The social well-being of recreationists would not be affected.

Alternative C: Impacts would be the same as Alternative A.

Alternatives D & E (Preferred): The social well-being of affected ranchers would be enhanced if conflicts are resolved by drawing elk away from private land. The social well-being of recreationists would be improved because wildlife viewing and hunting opportunities would improve.

From Prairie Dog and Black-Footed Ferret Management

Alternative A: Eliminating prairie dog towns could enhance the social well-being of 26 ranchers by addressing concerns about prairie dog expansion and a potential loss in livestock AUMs.

Some ranchers could experience changes in their lifestyles due to restrictions on livestock grazing and range improvements associated with reintroduction of the black-footed ferret. This could diminish the social well being of 17 ranchers within the reintroduction area.

The social well-being of recreationists would diminish if prairie dog shooting and wildlife viewing opportunities decline. For some, the opportunity to view black-footed ferrets would improve their social well-being.

The social well-being of some individuals associated with local businesses could decline by reducing the economic activity associated with prairie dog shooting.

Alternative B: Eliminating prairie dog towns could improve the social well-being of 33 ranchers by addressing concerns about prairie dog expansion and a potential loss in livestock AUMs.

Ranchers within the reintroduction area would not experience changes in their lifestyle. However, ranchers are concerned about the effects to the ranching way of life from outside interference with reintroduction of the black-footed ferret.

The impacts for recreationists and the local business communities would be the same as those in Alternative A.

Alternative C: Eliminating of prairie dog towns could improve the social well-being of 20 ranchers by addressing concerns about prairie dog expansion and a potential loss in livestock AUMs.

Ranchers are concerned about the effects to the ranching way of life from outside interference with reintroduction of the black-footed ferret and the restrictions imposed on other activities. This could diminish the social well-being for some of the 11 ranchers within the reintroduction area.

The impacts to recreationists and the local business communities would be the same as those in Alternative A.

Alternative D: The social well-being of some ranchers could diminish if ranch operations are disrupted with the expansion of prairie dog towns. Ranchers are concerned about prairie dog expansion and a potential loss in livestock AUMs.

Ranchers are concerned about the effects to the ranching way of life from outside interference with reintroduction of the black-footed ferret and the restrictions imposed on other activities. This could diminish the social well-being for some of the 39 ranchers within the reintroduction area by changing the way they do business.

In the long term, the social well-being of recreationists would be improved because lifestyle needs would be better met due to additional recreation opportunities for prairie dog shooting and wildlife viewing. For some, the opportunity to view black-footed ferrets would improve their social well-being.

Implementation could negatively affect the social well-being of individuals associated with some local businesses in the short term by reducing economic activity associated with prairie dog shooting.

Alternative E (Preferred): Controlling prairie dog towns at the 1988 level would not change the social well-being of ranchers. Ranchers are concerned about prairie dog expansion and a potential loss in livestock AUMs.

Ranchers within the reintroduction area would not experience changes in their lifestyles. However, ranchers are concerned about the effects to the ranching way of life from outside interference with reintroduction of the black-footed ferret.

The social well-being of most recreationists would not change because lifestyle needs would be met by prairie dog shooting and wildlife viewing opportunities, but the opportunity to view black-footed ferrets would improve their social well-being.

The social well-being of individuals associated with the local business community would not be affected.

From the Judith Mountains Scenic Area

Alternatives A (Current) & B: The social well-being of recreationists would diminish if lifestyle needs are not met because of a loss in recreation quality (see impacts to Social Conditions from Hardrock Mining Section).

Alternative C: The social well-being of recreationists would be enhanced because lifestyle needs would be better met due to an increase in recreation quality. Implementation could preclude the development or expansion of 2 mines

out of 18 possible mines in the planning area (see impacts to Social Conditions from Hardrock Mining Section).

Alternative D: The social well-being of recreationists would be enhanced because lifestyle needs would be better met due to an increase in recreation quality. Implementation could preclude the development or expansion of 3 mines out of 18 possible mines in the planning area (see impacts to Social Conditions from Hardrock Mining Section).

Alternative E (Preferred): The social well-being of recreationists to the South Moccasin Mountains could decline if lifestyle needs are not met because of a loss of recreation quality. Under worst case conditions, implementation could restrict the development or expansion of 1 mine out of 18 possible mines in the planning area (see impacts to Social Conditions from Hardrock Mining Section).

From the Acid Shale Pine Forest ACEC

Alternatives A (Current), B, C, D & E (Preferred): No impact to social well-being.

From the Square Butte ONA ACEC

Alternative A (Current): No impact to social well-being.

Alternative B: The social well being of recreationists could decline if the quality of recreation declined due to mineral development.

Alternatives C, D & E (Preferred): The social well-being of recreationists would be enhanced because lifestyle needs would be better met with an increase in recreation quality and opportunities.

From the Collar Gulch ACEC

Alternatives A (Current) & B: The social well-being of recreationists would diminish if lifestyle needs are not met because of a loss in recreation quality.

Alternatives C & D: The social well-being of recreationists could be enhanced because lifestyle needs could be better met due to an increase in recreation quality and opportunities. Implementation could preclude the development or expansion of 1 mine out of 18 possible mines in the planning area (see impacts to Social Conditions from Hardrock Mining Section).

Alternative E (Preferred): The impacts would be the same as those in Alternative A.

From the Azure Cave ACEC

Alternative A (Current): Azure cave would remain closed which would negatively affect the social well-being of some recreationists.

Alternative B: The social well-being of recreationists would be improved in the short term because lifestyle needs would be better met due to an increase in recreation opportunities. In the long term, the attractiveness of the cave resources could decline resulting in decreased recreation opportunities and social well-being.

Alternative C: The social well-being of recreationists would be improved because lifestyle needs would be better met due to an increase in recreation opportunities. In the long term, the attractiveness of the cave resources could diminish and the quality of the recreation experience could decline along with social well-being. Recreation development at the cave may positively affect the social well-being of people associated with the local business community in the short and long term.

Alternatives D & E (Preferred): The social well-being of recreationists would be enhanced because lifestyle needs would be better met due to an increase in recreation opportunities.

From the Big Bend of the Milk River ACEC

Alternatives A (Current) & B: There could be a decrease in the social well-being of some individuals due to lost opportunities to interpret cultural resources.

Alternatives C, D & E (Preferred): The social well-being of recreationists would be improved because lifestyle needs would be better met due to an increase in recreation quality and opportunities.

The social well-being of individuals associated with some local businesses would be enhanced due to an increase in economic activity and employment which would raise the standard of living for affected individuals.

SUMMARY OF THE CUMULATIVE EFFECTS

Hardrock Minerals and Oil and Gas

Alternative A (Current): The cumulative effects on hardrock minerals are shown in Table 4.23. Most of the high and moderate development potential land would be available for mineral development. This would be very favorable to

mineral resource development; a positive impact. The cumulative effects on other nonenergy mineral resources would be minor.

Stipulations would be applied to all oil and gas leases to protect surface resources. A No Surface Occupancy restriction, seasonal timing restrictions and controlled surface use would mitigate various surface resources. Most of the high and moderate development potential land (95%) would be available for oil and gas exploration and development with standard or special stipulations. This would be a positive impact to oil and gas exploration and development. The cumulative effects on oil and gas resources are shown in Table 4.24.

TABLE 4.23
BLM ACRES OF HARDROCK MINERAL
DEVELOPMENT POTENTIAL BY MANAGEMENT
CATEGORY - ALTERNATIVE A

Development Potential	Management Category		
	Open	Restricted	Closed
High	7,775 (99%)	0 (0%)	99 (1%)
Moderate	40,256 (99%)	0 (0%)	420 (1%)
Low	29,553 (84%)	5,538 (16%)	175 (<1%)

Source: BLM, 1990

TABLE 4.24
BLM ACREAGE SUBJECT TO STANDARD
STIPULATIONS, SPECIAL STIPULATIONS, NO
SURFACE OCCUPANCY OR CLOSED TO OIL AND
GAS LEASING IN HIGH AND MODERATE OIL AND
GAS DEVELOPMENT POTENTIAL AREAS -
ALTERNATIVE A

Development Potential	Standard Stipulations	Special Stipulations	No Surface Occupancy	Closed
High	414,680	0	2,530	5,150
Moderate	2,816,521	874	15,280	132,652

Source: BLM, 1990

Alternative B: The cumulative effects on hardrock minerals are shown in Table 4.25. All of the high and most of the moderate development potential land would be available for mineral development. This would be very favorable to mineral resource development; a positive impact. The cumulative effects on other nonenergy mineral resources would be minor.

TABLE 4.25
BLM ACRES OF HARDROCK MINERAL
DEVELOPMENT POTENTIAL BY MANAGEMENT
CATEGORY - ALTERNATIVE B

Development Potential	Management Category		
	Open	Restricted	Closed
High	7,874 (100%)	0 (0%)	0 (0%)
Moderate	40,522 (100%)	0 (0%)	54 (<1%)
Low	29,648 (84%)	5,538 (16%)	80 (<1%)

Source: BLM, 1990

The maximum amount of land (97%) would be open to oil and gas leasing with resource protection provided by standard lease terms. This would have a positive impact on oil and gas exploration and development. The cumulative effects on oil and gas resources are shown in Table 4.26.

TABLE 4.26
BLM ACREAGE SUBJECT TO STANDARD LEASE
TERMS, STIPULATIONS, NO SURFACE OCCUPANCY
OR CLOSED TO OIL AND GAS LEASING IN HIGH
AND MODERATE OIL AND GAS DEVELOPMENT
POTENTIAL AREAS - ALTERNATIVE B

Development Potential	Standard Stipulations	Special Stipulations	No Surface Occupancy	Closed
High	417,210	0	0	5,150
Moderate	2,852,515	0	0	112,812

Source: BLM, 1990

Alternative C: The cumulative effects on hardrock minerals are shown in Table 4.27. Most of the high and moderate development potential land would be available for mineral development. This would be favorable to mineral resource development; a positive impact. The cumulative effects on other nonenergy mineral resources would be minor.

TABLE 4.27
BLM ACRES OF HARDROCK MINERAL
DEVELOPMENT POTENTIAL BY MANAGEMENT
CATEGORY - ALTERNATIVE C

Development Potential	Management Category		
	Open	Restricted	Closed
High	7,419 (94%)	356 (5%)	99 (1%)
Moderate	34,453 (85%)	5,971 (15%)	252 (<1%)
Low	28,477 (81%)	6,659 (19%)	130 (<1%)

Source: BLM, 1990

Stipulations would protect surface resources while considering the types of oil and gas production activity in the area. Areas closed to leasing by legal designation such as WSAs, would remain closed. Other BLM land that is now closed would be available for leasing. Most of the high and moderate development potential land (92%) would be available for oil and gas exploration and development with stipulations or standard lease terms. This alternative would be generally favorable to oil and gas development. The cumulative effects on oil and gas resources are shown in Table 4.28.

TABLE 4.28 BLM ACREAGE SUBJECT TO STANDARD LEASE TERMS, STIPULATIONS, NO SURFACE OCCUPANCY OR CLOSED TO OIL AND GAS LEASING IN HIGH AND MODERATE OIL AND GAS DEVELOPMENT POTENTIAL AREAS - ALTERNATIVE C					
Development Potential	Standard Stipulations	Special Stipulations	No Surface Occupancy	Closed	
High	102,866	305,692	8,652	5,150	
Moderate	338,629	2,376,656	117,390	132,652	

Source: BLM, 1990

Alternative D: The cumulative effects on hardrock minerals are shown in Table 4.29. Nearly half of the land with hardrock mineral development potential would be closed to development. This would be a significant negative impact to mineral resource development.

TABLE 4.29 BLM ACRES OF HARDROCK MINERAL DEVELOPMENT POTENTIAL BY MANAGEMENT CATEGORY - ALTERNATIVE D				
Development Potential	Management Category			
	Open	Restricted	Closed	
High	5,774 (73%)	240 (3%)	1,860 (24%)	
Moderate	16,167 (40%)	100 (<1%)	24,409 (60%)	
Low	21,372 (61%)	5,538 (16%)	8,356 (23%)	

Source: BLM, 1990

This alternative provides the maximum protection for surface resources. It would not be favorable to oil and gas exploration and development. It relies heavily on discretionary closures and No Surface Occupancy restrictions to protect surface resources. Only 36% of the high and moderate development potential land would be available for oil and gas exploration and development with stipulations or standard lease terms. The cumulative effects on oil and gas resources are shown in Table 4.30.

TABLE 4.30 BLM ACREAGE SUBJECT TO STANDARD LEASE TERMS, STIPULATIONS, NO SURFACE OCCUPANCY OR CLOSED TO OIL AND GAS LEASING IN HIGH AND MODERATE OIL AND GAS DEVELOPMENT POTENTIAL AREAS - ALTERNATIVE D				
Development Potential	Standard Stipulations	Special Stipulations	No Surface Occupancy	Closed
High	102,866	208,454	105,890	5,150
Moderate	338,629	559,357	1,928,929	138,412

Source: BLM, 1990

Alternative E (Preferred): The cumulative effects on hardrock minerals are shown in Table 4.31. The majority of land with hardrock development potential would be open, or open with restrictions, to development. This would generally be favorable for mineral resource development.

TABLE 4.31 BLM ACRES OF HARDROCK MINERAL DEVELOPMENT POTENTIAL BY MANAGEMENT CATEGORY - ALTERNATIVE E			
Development Potential	Management Category		
	Open	Restricted	Closed
High	7,619 (97%)	156 (2%)	99 (1%)
Moderate	35,840 (88%)	4,584 (11%)	252 (1%)
Low	28,917 (82%)	6,219 (18%)	130 (<1%)

Source: BLM, 1990

The majority of the BLM land with high development potential 312,120 out of 422,360 acres would be available for oil and gas leasing and development with standard lease terms. This would be a favorable impact to oil and gas exploration and development. The high potential land would be available with minimum permitting and administrative processing. There would be moderate potential land subject to stipulations and No Surface Occupancy restrictions which would have a minor negative impact to oil and gas exploration and development. The cumulative effect on oil and gas resources are shown in Table 4.32.

TABLE 4.32 BLM ACREAGE SUBJECT TO STANDARD LEASE TERMS, STIPULATIONS, NO SURFACE OCCUPANCY OR CLOSED TO OIL AND GAS LEASING IN HIGH AND MODERATE OIL AND GAS DEVELOPMENT POTENTIAL AREAS - ALTERNATIVE E				
Development Potential	Standard Stipulations	Special Stipulations	No Surface Occupancy	Closed
High	312,120	99,940	5,150	5,150
Moderate	1,162,361	1,648,381	41,773	112,812

Source: BLM, 1990

Air and Water Quality

Alternative A (Current): The cumulative effects on air and water quality would be positive. Water quality would improve through grazing management on 1.99 million acres with riparian-wetland areas by increasing stream bank vegetation and reducing erosion. Water quality could be impacted by cyanide contamination from hardrock mining operations.

Alternative B: The cumulative effects on air and water quality would be positive. Water quality would improve through grazing management on 1.50 million acres with riparian-wetland areas by increasing stream bank vegetation and reducing erosion. Water quality could be impacted by cyanide contamination from hardrock mining operations.

Alternative C: The cumulative effects on air and water quality would be positive. Water quality would improve through grazing management on 2.45 million acres with riparian-wetland areas by increasing stream bank vegetation and reducing erosion. Water quality could be impacted by cyanide contamination from hardrock mining operations.

Alternative D: The cumulative effects on air and water quality would be positive. Water quality would improve through grazing management on 2.86 million acres with riparian-wetland areas by increasing stream bank vegetation and reducing erosion. Water quality could be impacted by cyanide contamination from hardrock mining operations.

Alternative E (Preferred): The cumulative effects on air and water quality would be positive. Water quality would improve through grazing management on 2.38 million acres with riparian-wetland areas by increasing stream bank vegetation and reducing erosion. Water quality could be impacted by cyanide contamination from hardrock mining operations.

Soil and Vegetation

Alternative A (Current): The cumulative effects on soil and vegetation would be positive. There would be an improvement in the ecological status of vegetation and reduction in soil erosion from improved grazing management on 1.99 million acres with riparian-wetland areas. Prairie dog management would result in improved vegetation cover on 10,013 acres.

There would also be negative impacts to soil and vegetation from the potential farming of 68,069 acres, ORV use on 2,375,440 acres, improved public access, oil and gas exploration and development, potential bentonite mining and projected hardrock exploration and mining on 1,430 acres.

Alternative B: The cumulative effects on soil and vegetation would be negative. There would be limited improvement in the ecological status of vegetation and reduced soil erosion from improved grazing management on 1.50 million acres with riparian-wetland areas. Prairie dog management would result in improved vegetation cover on 6,859 acres.

There would be negative impacts to soil and vegetation from the potential farming of 68,069 acres, ORV use on 2,687,570 acres, oil and gas exploration and development, potential bentonite mining and projected hardrock exploration and mining on 1,430 acres.

Alternative C: The cumulative effects on soil and vegetation would be positive. There would be substantial improvement in the ecological status of vegetation and a reduction in soil erosion from improved grazing management on 2.45 million acres with riparian-wetland areas. Prairie dog management would result in improved vegetation cover on 1,330 acres.

There would be negative impacts to soil and vegetation from the potential farming of 68,069 acres, ORV use on 1,818,437 acres, oil and gas exploration and development, potential bentonite mining and projected hardrock exploration and mining on 1,330 acres.

Alternative D: The cumulative effects on soil and vegetation would be positive. Protecting sensitive areas from hardrock mining and oil and gas activities and limiting ORV use throughout the planning area would reduce the potential for soil erosion and vegetation damage. There would be substantial improvement in the ecological status of vegetation and a reduction in soil erosion from improved grazing management on 2.86 million acres with riparian-wetland areas.

There would be negative impacts to soil and vegetation from the potential farming of 68,069 acres, oil and gas exploration and development, potential bentonite mining and projected hardrock exploration and mining on 985 acres.

Alternative E (Preferred): The cumulative effects on soil and vegetation would be positive. There would be substantial improvement in the ecological status of vegetation and reduction in soil erosion from improved grazing management on 2.38 million acres with riparian-wetland areas. ORV use would be limited or closed on the most popular hunting areas, limiting damage to soil and vegetation.

There would be negative impacts to soil and vegetation from the potential farming of 68,069 acres, oil and gas exploration and development, potential bentonite mining and projected hardrock exploration and mining on 1,330 acres.

Livestock Grazing Management

Alternative A (Current): The cumulative effects on livestock grazing management would be positive because of improved grazing management on 1.99 million acres with riparian-wetland areas.

Alternative B: The cumulative effects on livestock grazing management would be negative. No new AMPs would be implemented on riparian-wetland areas.

Alternative C: The cumulative effects on livestock grazing management would be positive because of improved grazing management on 2.45 million acres with riparian-wetland areas.

Alternative D: The cumulative effects on livestock grazing management would be positive because of improved grazing management on 2.86 million acres with riparian-wetland areas.

Alternative E (Preferred): The cumulative effects on livestock grazing management would be positive because of improved grazing management on 2.38 million acres with riparian-wetland areas.

Wildlife

Alternative A (Current): There would be positive impacts from acquiring wildlife habitat, limiting ORV use yearlong and closing Square Butte to ORV use, protecting wildlife during oil and gas exploration and development, mitigating hardrock mining impacts, managing riparian-wetland areas, providing habitat for elk and bighorn sheep expansion, managing prairie dogs in the Valley and Phillips RAs, and protecting the wildlife values of Square Butte and Azure Cave.

There would be negative impacts from wildlife harassment with new access and unrestricted ORV use. The elimination of 9,912 acres (75%) of prairie dog towns in the Phillips RA would result in the lost opportunity to reintroduce the black-footed ferret. Mining activity could result in the possible loss of the westslope cutthroat trout in the Collar Gulch area.

Overall, the cumulative effects on wildlife would be positive.

Alternative B: There would be positive impacts of acquiring wildlife habitat, not gaining new access, limiting ORV use and closing Square Butte to ORV use, protecting some wildlife during oil and gas exploration and development, mitigating hardrock mining impacts, managing riparian-wetland areas, maintaining elk and bighorn sheep habitat, managing prairie dog towns in the Valley RA, and managing 6,462 acres of prairie dog towns in Phillips RA for black-footed ferret reintroduction.

There would be negative impacts from not acquiring quality wildlife habitat, wildlife harassment with unrestricted ORV use, potential impacts to wildlife on about 3,269,725 acres through unstipulated oil and gas leasing, loss of protection of sensitive wildlife habitat to hardrock mining, providing habitat for elk and bighorn sheep expansion, elimination of 6,758 acres (51%) of prairie dog towns in the Phillips RA, possible loss of the westslope cutthroat trout population in Collar Gulch, the loss of Azure Cave as an important bat hibernaculum and the loss of wildlife values on Square Butte.

Overall, cumulative effects on wildlife would be negative.

Alternative C: There would be positive impacts of acquiring low quality wildlife habitat, limiting ORV use yearlong and closing ORV use on 3,805 acres, protecting some wildlife during oil and gas leasing on 2,946,192 acres, mitigating hardrock mining impacts, managing riparian-wetland areas, allowing elk and bighorn sheep expansion, managing prairie dog towns in the Valley RA, managing prairie dog towns in Phillips RA for black-footed ferret reintroduction and protecting the wildlife values of Square Butte, Collar Gulch and Azure Cave ACECs.

There would be negative impacts from wildlife harassment with unrestricted ORV use and elimination of 1,229 acres (10%) of prairie dog towns in the Phillips RA.

Overall, the cumulative effects on wildlife would be positive.

Alternative D: There would be positive impacts of acquiring high quality wildlife habitat, limiting ORV use and closing ORV use on 21,135 acres, protecting wildlife during oil and gas leasing, mitigating hardrock mining impacts, managing riparian-wetland areas, allowing elk and bighorn sheep expansion, managing for prairie dog towns in the Judith and Valley RAs, managing prairie dog towns in the Phillips RA for black-footed ferret reintroduction and prairie dog shooting and protecting the wildlife values of Square Butte, Collar Gulch and Azure Cave ACECs.

Overall, the cumulative effects on wildlife would be positive.

Alternative E (Preferred): There would be positive impacts of acquiring high quality wildlife habitat, limiting ORV use yearlong (157,413 acres) and closing ORV use on 1,947 acres, protecting most wildlife during oil and gas leasing, mitigating hardrock mining impacts, managing riparian-wetland areas, allowing elk and bighorn sheep expansion, managing prairie dog towns in the Judith and Valley RAs, managing prairie dog towns in Phillips RA for black-footed ferret reintroduction and prairie dog shooting and protecting the wildlife values of Square Butte and Azure Cave.

There would be negative impacts to wildlife from harassment on 71,793 acres with new access, 1,126,858 acres with

additional access and on 1,990,501 acres (69%) through unrestricted ORV use. Mining activity could result in the possible loss of the westslope cutthroat trout in the Collar Gulch area.

Overall, the cumulative effects on wildlife would be positive.

Forestry

Alternatives A (Current), B, C, D & E (Preferred): As a result of land acquisition and disposal, there could be a net gain in the annual allowable cut.

Cultural Resources

Alternatives A (Current) & B: There may be some cumulative effects on cultural resources from hardrock mining. Most mining activity would occur in the isolated mountain ranges in the planning area. These areas also served as important resources for Native Americans throughout prehistory and the present. The mountain ranges were attractive to prehistoric peoples because of the resources they possess and because of the religious values associated with certain peaks and areas. The cultural resources in these areas are thus unique and in some cases, not duplicated elsewhere in the planning area.

Mitigation measures normally employed for archaeological and historic cultural properties are geared to remove information from the ground or to document and record the resource and then analyze that information. Cultural resources which contain religious values cannot as a rule be mitigated. As a result, if sites are present which have these values residual impacts would occur. Also, due to the unique nature of these archaeological resources, there are a limited number of these resources. Archaeological mitigation may be able to recover much information about these resources, but because of the small number of such resources the cumulative impacts would not be measurable.

Alternative C: Cumulative effects on cultural resources from hardrock mining would be slightly reduced, but similar to Alternative A. Even with this reduction, because of the limited number of possible mine locations, it is anticipated that the potential exists for residual impacts, should development occur. Designating the Big Bend of the Milk River an ACEC would have a positive effect on cultural resources.

Alternative D: Due to the reduction in the number of acres open for mineral entry, the likelihood of cumulative effects on cultural resources from hardrock mining would be reduced. The potential still exists, however, because of the limited number of possible locations for a mine site and the probability of cultural resources situated near or at that

location. Designating the Big Bend of the Milk River an ACEC would have a positive effect on cultural resources.

Alternative E (Preferred): The cumulative effects would be the same as those in Alternative C.

Recreation

Alternative A (Current): Hardrock mining activity could discourage or curtail dispersed recreation use and displace some recreation use to other areas. This could have a long-term negative impact on recreation in those areas.

Riparian and wetland management would provide an estimated 58,000 visits for waterfowl hunting in states south of Montana. This would be a significant positive impact on waterfowl hunting outside the planning area.

In the short term, eliminating 10,013 acres of prairie dog towns, would eliminate a 100% of shooting opportunities in the Phillips RA.

Alternative B: The effects of acquisition would have a positive impact on recreation

Hardrock mining activity could discourage or curtail dispersed recreation use and displace some recreation use to other areas. This could have a long-term negative impact on recreation use in those areas.

Riparian and wetland management would provide an estimated 42,000 visits for waterfowl hunting in states south of Montana. This would be a significant positive impact on waterfowl hunting outside the planning area.

With a 6,800 acre reduction in prairie dog towns, there would be a 50% loss of shooting opportunities.

Alternative C: The effects of acquisition would have a positive impact on recreation.

A positive effect would result from new access to 71,793 BLM acres. Recreation use could increase by 2,300 visits. The opportunities for ORV use would decrease, while the opportunities and quality for walk-in hunting would increase.

Hardrock mining activity could discourage or curtail dispersed recreation use and displace some recreation use to other areas. This could have a long-term negative impact on recreation use in those areas.

Riparian and wetland management would provide an estimated 68,000 visits for waterfowl hunting in states south of Montana. This would be a significant positive impact on waterfowl hunting outside of the planning area.

With a 8,697 acre reduction in prairie dog towns available for shooting, there would be a 62% decrease in shooting opportunities.

Alternative D: The effects of acquisition would have a positive impact on recreation.

A significant positive impact on recreation use would result from new access to 71,793 acres and additional access to 1,126,858 BLM acres; recreation use could increase by 9,600 visits.

Recreation use by walk-in hunters would increase due to ORV restrictions on all but 40 acres of BLM land. Hunters supporting unrestricted ORV use may shift to other areas.

Hardrock mining activity could discourage or curtail dispersed recreation use and displace some recreation use to other areas. This could have a long-term negative effect on recreation use in those areas.

Riparian and wetland management would provide an estimated 74,000 visits for waterfowl hunting in states south of Montana. This would be a significant positive impact on waterfowl hunting outside of the planning area.

In the short term, after ferret reintroduction occurs, there could be a 86% loss of prairie dog shooting opportunities. In the long term, there would be an increase in wildlife viewing and prairie dog shooting opportunities with the expansion of prairie dog towns on BLM land.

Alternative E (Preferred): The effects of acquisition would have a positive impact on recreation.

A significant positive effect on recreation use would result from new access to 71,793 BLM acres and additional access to 1,126,858 BLM acres; recreation use could increase by 9,600 visits.

The opportunities for ORV use would decrease, while the opportunities for walk-in hunting would increase.

Hardrock mining activity could discourage or curtail dispersed recreation use and displace some recreation use to other areas. This could have a long-term negative effect on recreation use in those areas.

Riparian and wetland management would provide an estimated 65,000 visits for waterfowl hunting in states south of Montana. This would be a significant positive impact on waterfowl hunting outside of the planning area.

Approximately 14,091 acres of prairie dog towns would be available for shooting, provided the impacts to ferrets are not detrimental. This would have no effect on shooting opportunities.

Visual Resources

Alternatives A (Current) & B: Unrestricted ORV use could cause negative impacts to the visual quality of the natural landscape.

Through mining and exploration activities there would be a negative impact on the visual quality of the natural landscape. Surface disturbing activities would affect the line, form, color, and texture of the natural landscape.

The potential for deteriorated scenic qualities exists from mining claim location, exploration and development in the South Moccasins and Judith Mountains. Mining activities could cause long term or permanent changes in the natural landscape.

Alternatives C, D & E (Preferred): Unrestricted ORV use could cause negative impacts to the visual quality of the natural landscape.

Through mining and exploration activities there would be a negative impact on the visual quality of the natural landscape. Surface disturbing activities would affect the line, form, color, and texture of the natural landscape.

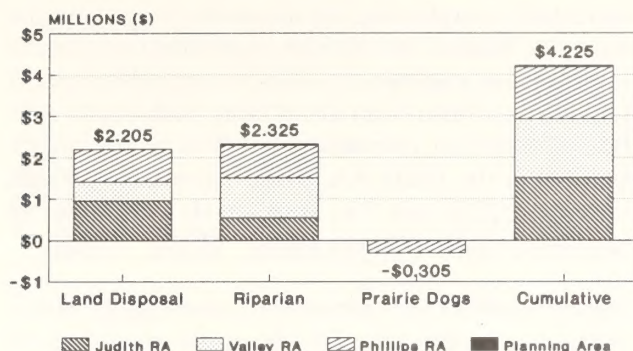
Economic Conditions

Alternative A (Current): Figures 4.3, 4.4, and 4.5 show the cumulative effects by issue, for total annual economic benefit, employment and fiscal conditions.

Annual total economic benefit could increase \$4.2 million. This would not be a significant increase over current conditions in the planning area. No single issue would cause significant impacts to total annual economic activity for the planning area or any of the resource areas. However, some sectors of the economy would have significant impacts. The Phillips RA could experience a 9% decline (\$436,000) in economic benefit due to a decrease in prairie dog shooting opportunities. In addition, mineral development could result in significant increases in economic activity in the Judith and Phillips RAs during mine development and production.

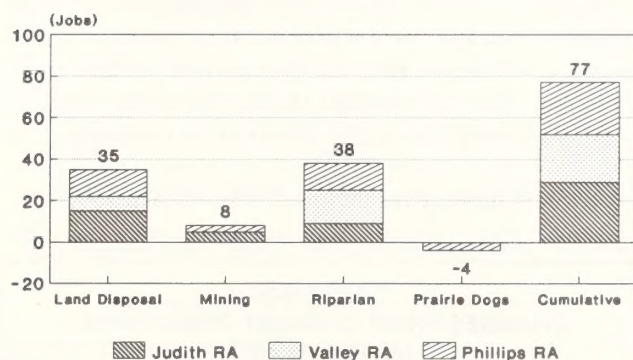
Total annual employment could increase by 77 jobs. This increase would not be significant for the planning area, less than 1%. The estimated increase includes employment attributable to exploration but not development of mineral resources. Mineral development employment is estimated in terms of peak employment under a maximum development scenario rather than on an annual basis. Peak employment from development, estimated to be 600 in the Phillips RA and 800 in the Judith RA, would represent significant increases (22% and 7% respectively) over current employment in the planning area.

FIGURE 4.3
Total Annual Economic Benefit
Alternative A



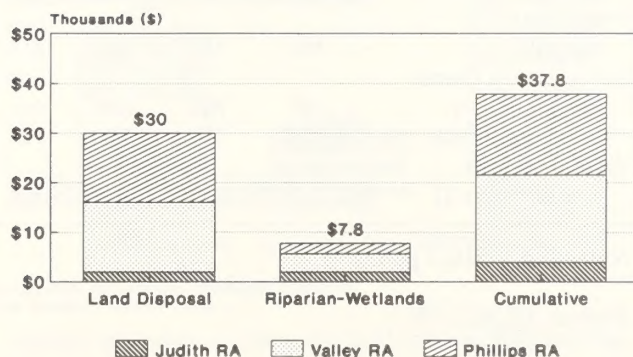
ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

FIGURE 4.4
Total Annual Employment Impacts
Alternative A



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

FIGURE 4.5
Total Annual Fiscal Impacts
Alternative A



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

Management costs are estimated to increase \$22.9 million dollars over the life of the plan. These costs would occur on a one-time basis only for BLM (\$21.4 million) and ranching operations (\$1.5 million). The increase in total economic benefit attributable to these costs would be \$30.8 million over the life of the plan. BLM would incur an estimated \$98,000 increase in annual costs for prairie dog and black-footed ferret management, resulting in an increase of \$131,000 in economic activity in the planning area.

Annual tax revenues could increase \$37,800, due to changes in land tenure and agricultural production. This is not a significant increase over current conditions. In addition, increased mineral production could result in significant increases in state and local tax revenues.

Table 4.33 summarizes the cumulative effects.

TABLE 4.33
CHANGES FROM CURRENT CONDITIONS -
ALTERNATIVE A

Economic Elements	Planning Area	Resource Area		
		Judith	Valley	Phillips
Total Economic Benefit				
Annual (000s \$)	4,225	1,501	1,422	1,266
One-time (000s \$)	39,000	5,200	NA	3,000
Employment				
Annual	77	29	23	25
Population				
Annual	NA	NA	NA	NA
Management Costs				
Annual (\$000)	98	NA	NA	NA
One-time (\$000)	22,900	NA	NA	NA
Fiscal				
Annual (000s \$)	37.8	3.9	17.7	16.2

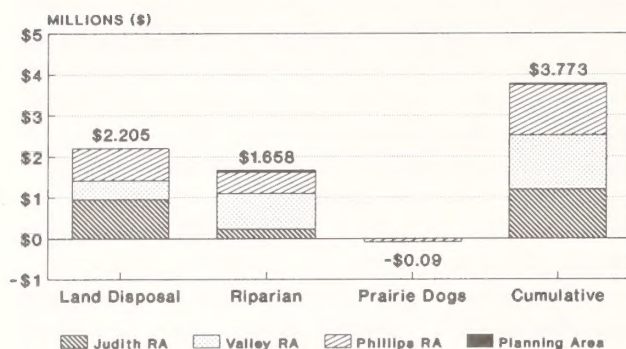
Note: NA is Not Applicable

Source: BLM, 1990

Alternative B: Figures 4.6, 4.7, and 4.8 show the cumulative effects by issue, for total annual economic benefit, employment, and fiscal conditions.

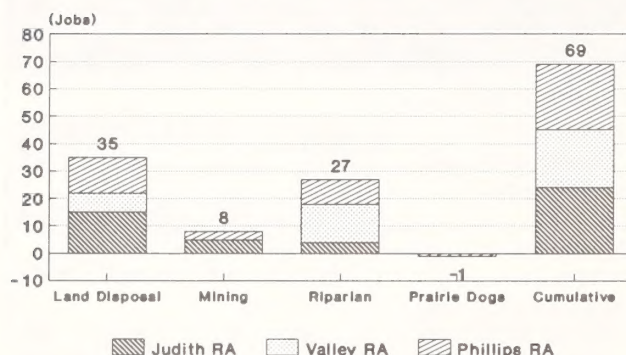
Annual total economic benefit could increase \$3.8 million. This would not be a significant increase over current conditions in the planning area. No single issue would cause significant impacts to total annual economic activity for the planning area or any of the resource areas. However, mineral development could result in significant increases in economic activity in the Judith and Phillips RAs during mine development and production.

FIGURE 4.6
Total Annual Economic Benefit
Alternative B



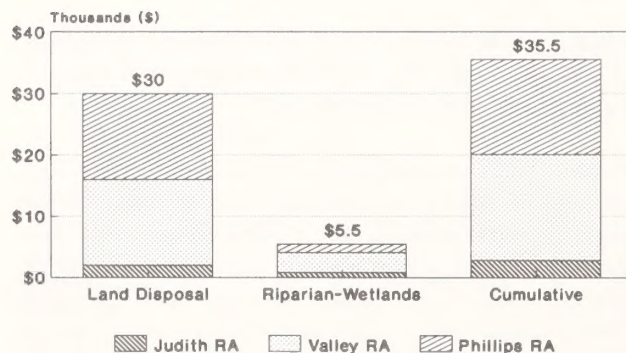
ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

FIGURE 4.7
Total Annual Employment Impacts
Alternative B



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

FIGURE 4.8
Total Annual Fiscal Impacts
Alternative B



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

Total annual employment could increase by 69 jobs. This increase would not be significant for the planning area, less than 1%. The estimated increase includes employment attributable to exploration, but not development of mineral resources. Mineral development employment is estimated in terms of peak employment under a maximum development scenario rather than on an annual basis. Peak employment from development, estimated to be 600 in the Phillips RA and 800 in the Judith RA, would represent significant increases (22% and 7%, respectively) over current employment in the planning area.

Management costs are estimated to increase \$13.9 million dollars over the life of the plan. These costs would occur on a one-time basis for BLM (\$13.1 million) and ranching operations (\$800,000). The increase in total economic benefit attributable to these costs would be \$19 million over the life of the plan. BLM would incur an increase in annual costs for prairie dog and black-footed ferret management, estimated to be \$95,000, resulting in an increase of \$127,000 in total economic activity in the planning area.

Annual tax revenues could increase \$35,500, due to changes in land tenure and changes in agricultural production. This is not a significant increase over current conditions. In addition, increased mineral production could result in significant increases in state and local tax revenues.

Table 4.34 summarizes the cumulative effects.

TABLE 4.34
CHANGES FROM CURRENT CONDITIONS -
ALTERNATIVE B

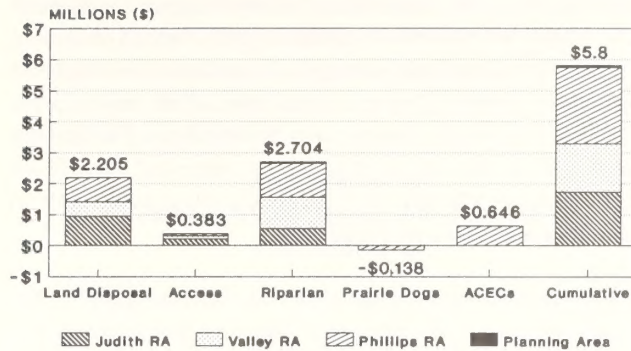
Economic Elements	Planning Area	Resource Area		
		Judith	Valley	Phillips
Total Economic Benefit				
Annual (000s \$)	3,773	1,198	1,325	1,223
One-time (000s \$)	27,203	5,200	NA	3,000
Employment				
Annual	69	24	21	24
Population				
Annual	NA	NA	NA	NA
Management Costs				
Annual (\$000)	98	NA	NA	NA
One-time (\$000)	13,922	NA	NA	NA
Fiscal				
Annual (000s \$)	35.5	2.8	17.3	15.4

Note: NA is Not Applicable

Source: BLM, 1990

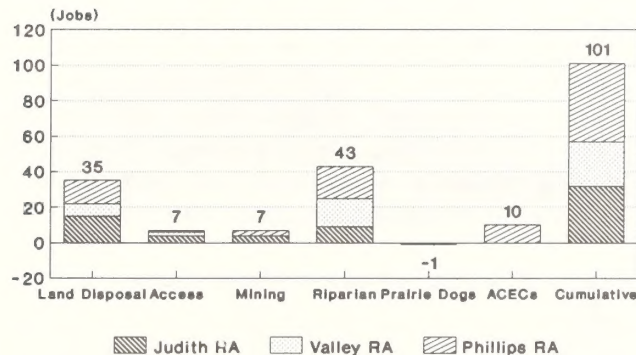
Alternative C: Figures 4.9, 4.10, and 4.11 show the cumulative effects by issue, for total annual economic benefit, employment, and fiscal conditions.

FIGURE 4.9
Total Annual Economic Benefit
Alternative C



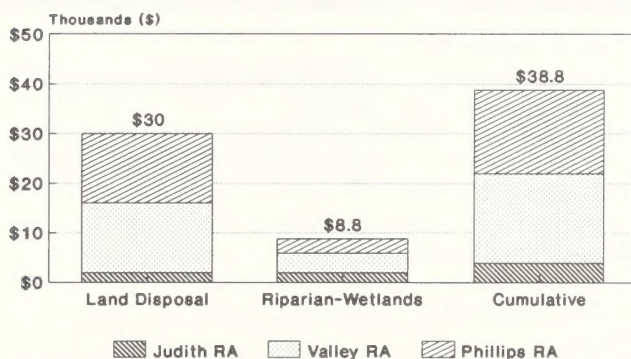
ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

FIGURE 4.10
Total Annual Employment Impacts
Alternative C



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

FIGURE 4.11
Total Annual Fiscal Impacts
Alternative C



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

Annual total economic benefit could increase \$5.8 million. This would not be a significant increase over current conditions in the planning area. No single issue would cause significant impacts to total annual economic activity for the planning area or any of the resource areas. However, some sectors of the economy would have significant impacts. Economic activity attributable to recreation opportunities

on BLM land would increase \$650,000 million in the planning area, a significant increase of 7%. The increase would be significant for the Judith and Phillips RAs as well: Judith, \$160,000 (4.5%); and Phillips, \$429,000 (11%). In addition, mineral development could result in significant increases in economic activity in the Judith and Phillips RAs during mine development and production.

Total annual employment could increase by 101 jobs. This increase would not be significant for the planning area, less than 1%. The estimated increase includes employment attributable to exploration, but not development of mineral resources. Mineral development employment is estimated in terms of peak employment under a maximum development scenario rather than on an annual basis. Peak employment from development, estimated to be 600 in the Phillips RA and 500 in the Judith RA at peak employment, would represent significant increases (22% and 6%, respectively) over current employment in the planning area.

Management costs are estimated to increase \$26.4 million dollars over the life of the plan. These costs would occur on a one-time basis for BLM (\$23.8 million) and ranching operations (\$2.5 million). The increase in total economic benefit attributable to these costs would be \$35.9 million over the life of the plan. BLM would incur an increase in annual costs for prairie dog and black-footed ferret management, estimated to be \$108,000, resulting in an increase of \$145,000 in economic activity in the planning area.

Annual tax revenues could increase \$38,800, due to changes in land tenure and changes in agricultural production. This is not a significant increase over current conditions. In addition, increased mineral production could result in significant increases in state and local tax revenues.

Table 4.35 summarizes the cumulative effects.

TABLE 4.35
CHANGES FROM CURRENT CONDITIONS -
ALTERNATIVE C

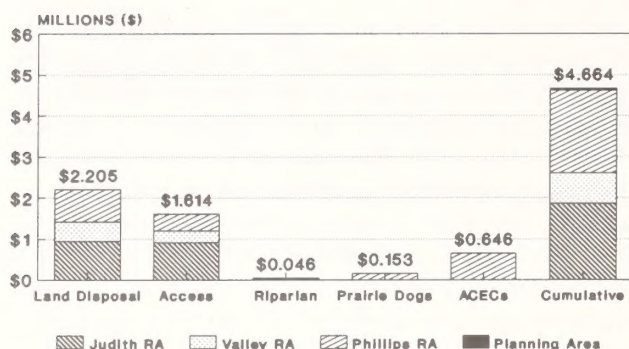
Economic Elements	Planning Area	Resource Area		
		Judith	Valley	Phillips
Total Economic Benefit				
Annual (000s \$)	5,800	1,731	1,563	2,464
One-time (000s \$)	43,400	4,500	NA	3,000
Employment				
Annual	101	44	25	32
Population				
Annual	NA	NA	NA	NA
Management Costs				
Annual (\$000)	108	NA	NA	NA
One-time (\$000)	26,368	NA	NA	NA
Fiscal				
Annual (000s \$)	38.8	3.9	18	16.9

Note: NA is Not Applicable

Source: BLM, 1990

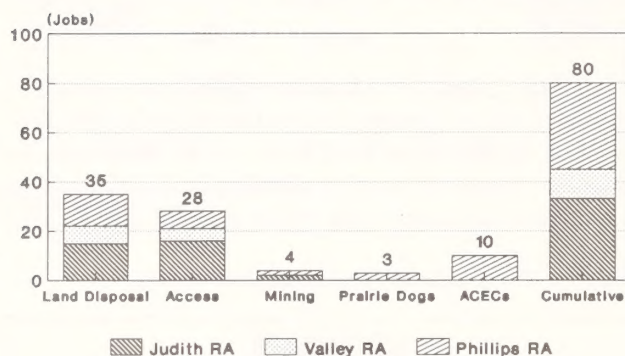
Alternative D: Figures 4.12 and 4.13 show the cumulative effects by issue, for total annual economic benefit and employment.

FIGURE 4.12
Total Annual Economic Benefit
Alternative D



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

FIGURE 4.13
Total Annual Employment Impacts
Alternative D



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

Annual total economic benefit could increase \$4.7 million. This would not be a significant increase over current conditions in the planning area. No single issue would cause significant impacts to total annual economic activity for the planning area or any of the resource areas. However, some sectors of the economy would have significant impacts. Economic activity attributable to recreation opportunities on BLM land would increase \$1.7 million in the planning area, a significant increase of 19%. The increase would be significant for each resource area as well: Judith, \$667,000 (19%); Valley, \$183,000 (11%); Phillips, \$871,000 (23%). In addition, mineral development could result in significant increases in economic activity in the Judith and Phillips RAs during mine development and production.

Total annual employment could increase by 80 jobs. This increase would not be significant for the planning area, less than 1%. The estimated increase includes employment attributable to exploration, but not development of mineral resources. Mineral development employment is estimated in terms of peak employment under a maximum development scenario rather than on an annual basis. Peak employment from development, estimated to be 400 in the Phillips RA and 300 in the Judith RA, would represent significant increases (15% and 4%, respectively) over current employment in the planning area.

Management costs are estimated to increase \$30 million dollars over the life of the plan. These costs would occur on a one-time basis for BLM (\$26.8 million) and ranching operations (\$3.2 million). The increase in total economic benefit attributable to these costs would be \$40.7 million over the life of the plan. BLM would incur an increase in annual costs for prairie dog and black-footed ferret management, estimated to be \$114,000, resulting in an increase of \$153,000 in economic activity in the planning area.

Annual tax revenues could increase \$30,000 due to changes in land tenure and changes in agricultural production. This is not a significant increase over current conditions. In addition, increased mineral production could result in significant increases in state and local tax revenues.

Table 4.36 summarizes the cumulative effects.

TABLE 4.36
CHANGES FROM CURRENT CONDITIONS -
ALTERNATIVE D

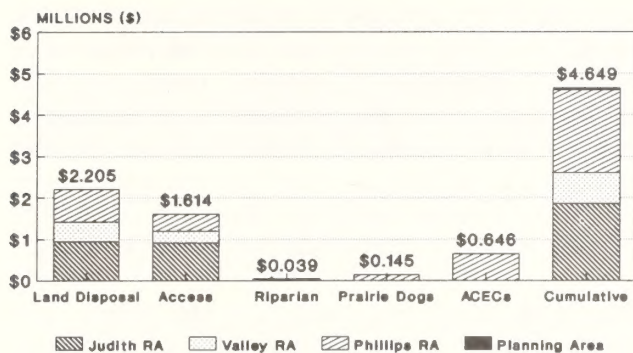
Economic Elements	Planning Area	Resource Area		
		Judith	Valley	Phillips
Total Economic Benefit				
Annual (000s \$)	4,664	1,867	737	2,014
One-time (000s \$)	44,500	2,000	NA	1,800
Employment				
Annual	80	33	12	35
Population				
Annual	NA	NA	NA	NA
Management Costs				
Annual (\$000)	114	NA	NA	NA
One-time (\$000)	30,000	NA	NA	NA
Fiscal				
Annual (000s \$)	30	2	14	14

Note: NA is Not Applicable

Source: BLM, 1990

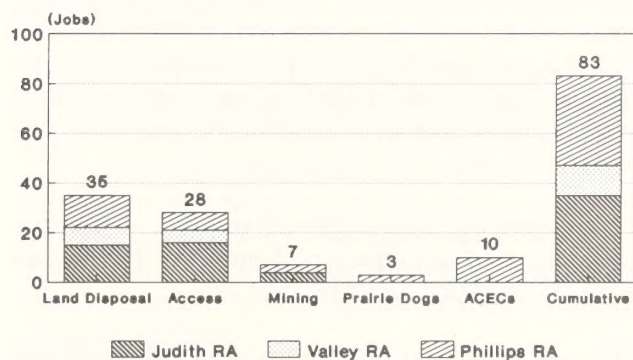
Alternative E (Preferred): The cumulative effects of this alternative would be similar to Alternative D, with the exception of impacts related to hardrock exploration and development. Employment, population and fiscal impacts related to hardrock exploration and development would be similar to Alternative A. Figures 4.14 and 4.15 show the cumulative effects by issue, for total annual economic benefit and employment.

FIGURE 4.14
Total Annual Economic Benefit
Alternative E



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

FIGURE 4.15
Total Annual Employment Impacts
Alternative E



ISSUES WITH QUANTIFIED ECONOMIC IMPACTS
FROM CURRENT CONDITIONS

Annual total economic benefit could increase \$4.6 million. This would not be a significant increase over current conditions in the planning area. No single issue would cause significant impacts to total annual economic activity for the planning area or any of the resource areas. However, some sectors would have significant impacts. Economic activity attributable to recreation opportunities on BLM land would increase \$1.7 million for the planning area, a significant increase of 19%. The increase would be significant for each resource area as well: Judith, \$667,000 (19%); Valley, \$183,000 (11%); Phillips, \$871,000 (23%). In addition, mineral development could result in significant increases in economic activity in the Judith and Phillips RAs during mine development and production.

Total annual employment could increase by 83 jobs. This increase would not be significant for the planning area, less than 1%. The estimated increase includes employment attributable to exploration, but not development of mineral resources. Mineral development employment is estimated in terms of peak employment under a maximum development scenario rather than on an annual basis. Peak employment from development, estimated to be 600 in the Phillips RA and 500 in the Judith RA, would represent significant increases (22% and 6%, respectively) over current employment in the planning area.

Management costs are estimated to increase \$23.7 million dollars over the life of the plan. These costs would occur on a one-time basis for BLM (\$21.6 million) and ranching operations (\$2.1 million). The increase in total economic benefit attributable to these costs would be \$32.5 million over the life of the plan. BLM would incur an increase in annual costs for prairie dog and black-footed ferret management, estimated to be \$109,000, resulting in an increase of \$145,000 in economic activity.

Annual tax revenues could increase \$31,000 due to changes in land tenure and changes in agricultural production. This is not a significant increase over current conditions. In addition, increased mineral production could result in significant increases in state and local tax revenues.

Table 4.37 summarizes the cumulative effects.

TABLE 4.37
CHANGES FROM CURRENT CONDITIONS -
ALTERNATIVE E

Economic Elements	Planning Area	Resource Area		
		Judith	Valley	Phillips
Total Economic Benefit				
Annual (000s \$)	4,649	1,867	737	2,006
One-time (000s \$)	39,978	4,500	NA	3,000
Employment				
Annual	83	35	12	36
Population				
Annual	NA	NA	NA	NA
Management Costs				
Annual (\$000)	145	NA	NA	NA
One-time (\$000)	23,715	NA	NA	NA
Fiscal				
Annual (000s \$)	31	3	14	14

Note: NA is Not Applicable

Source: BLM, 1990

Social Conditions

Alternative A (Current): Changes in population would not be significant for the planning area with the exception of potential hardrock mineral development. Under a maximum development scenario, the Phillips RA could experience a 28% increase in population (1,500) and the Judith RA could experience a 12% increase (2,000) at peak employment, potentially creating significant impacts to population, infrastructure, social organization and social well-being.

Overall, this alternative would enhance the social well-being of ranchers, although some negative impacts would also occur. Positive effects to social well-being would occur because of the limited access acquisition, some ranchers could acquire livestock grazing land, enhancement of grazing management through riparian and wetland management, and the elimination of most prairie dog towns. Negative effects to social well-being would occur because some ranchers could lose livestock AUMs from land acquisition and disposal, ORV problems would not be resolved, conflicts between livestock and elk could increase, and reintroduction of the black-footed ferret could disrupt current ranch lifestyles.

The overall effect to the social well-being of recreationists would be negative. Current problems with ORV use and access to BLM land would not be resolved.

The social well-being of some farmers and people associated with some local businesses would be enhanced due to an increase in the standard of living from economic activity associated with crop production in the Phillips RA. The social well-being of people associated with some local businesses could diminish because the economic activity associated with prairie dog shooting would be reduced.

Alternative B: Changes in population would not be significant for the planning area with the exception of potential hardrock mineral development. Under a maximum development scenario, the Phillips RA could experience a 28% increase in population (1,500) and the Judith RA could experience a 12% increase (2,000) at peak employment, potentially creating significant impacts to population, infrastructure, social organization and social well-being.

Overall, this alternative would enhance the social well-being of ranchers, although some negative impacts would also occur. Positive effects to social well-being would occur because no additional access would be acquired, some ranchers could acquire livestock grazing land, and the elimination of some prairie dog towns. Negative effects to social well-being would occur because some ranchers would lose livestock grazing AUMs from land acquisition and disposal, ORV problems would not be resolved, conflicts between livestock and elk could increase, and reintroduction of the black-footed ferret could disrupt current ranch lifestyles.

The overall effect to the social well-being of recreationists would be negative. Current problems with ORV use and access to BLM land would not be resolved.

The social well-being of some farmers and people associated with some local businesses would be enhanced due to an increase in the standard of living from economic activity associated with crop production in the Phillips RA. The social well-being of people associated with some local businesses could diminish because the economic activity associated with prairie dog shooting would be reduced.

Alternative C: Changes in population would not be significant for the planning area with the exception of potential hardrock mineral development. Under a maximum development scenario, the Phillips RA could experience a 28% increase in population (1,500) and the Judith RA could experience a 7% increase (1,200) at peak employment, potentially creating significant impacts to population, infrastructure, social organization and social well-being.

Overall, this alternative would have both positive and negative effects on the social well-being of ranchers. Negative effects to social well-being would occur because some ranchers could lose livestock grazing AUMs from land acquisition and disposal, additional access could be acquired by BLM, conflicts between elk and livestock could increase, and reintroduction of the black-footed ferret could disrupt current ranch lifestyles. Positive effects to social well-being would occur by some ranchers acquiring livestock grazing land, enhancement of grazing management through riparian and wetland management, eliminating some prairie dog towns, and resolution of some ORV and access problems.

The overall effect to the social well-being of recreationists would be positive. Current problems with ORV use and access to BLM land would be addressed.

The social well-being of some farmers and people associated with some local businesses would be enhanced due to an increase in the standard of living from economic activity associated with crop production in the Phillips RA. The social well-being of people associated with some local businesses could diminish because the economic activity associated with prairie dog shooting would be reduced.

Alternative D: Changes in population would not be significant for the planning area with the exception of potential hardrock mineral development. Under a maximum development scenario, the Phillips RA could experience a significant increase of 20% in population (1,100) and the Judith RA could experience a 4% increase (700) at peak employment. Although the increase in the Judith RA is marginally significant at 4%, it should be noted that most of the increase would be felt in Fergus County, and would likely generate significant employment and population impacts in the county. These population increases could

potentially create significant impacts to population, infrastructure, social organization and social well-being.

Overall, this alternative would decrease the social well-being of ranchers although some positive effects would also occur. Negative effects to social well-being would occur because some ranchers would lose livestock grazing AUMs from land acquisition and disposal, additional access could be acquired by BLM, and reintroduction of the black-footed ferret could disrupt current ranch lifestyles. Positive effects to social well-being would occur by some ranchers acquiring livestock grazing land, enhancement of grazing management through riparian and wetland management, conflicts between livestock and elk could decrease, and resolution of some ORV and access problems. Some ranchers would feel implementation of this alternative would divert needed resources away from the ranching lifestyle.

The overall effect to the social well-being of recreationists would be positive. Current problems with ORV use and access to BLM land would be addressed.

The social well-being of some farmers and people associated with local businesses would be enhanced due to an increase in the standard of living from economic activity associated with crop production in the Phillips RA. This alternative could negatively affect the social well-being of some people associated with local businesses in the short term because economic activity associated with prairie dog shooting could be reduced.

Alternative E (Preferred): Changes in population would not be significant for the planning area with the exception of potential hardrock mineral development. Under a maximum development scenario, the Phillips RA could experience a significant increase of 28% in population (1,500) and the Judith RA could experience a 7% increase (1,200) at peak employment, potentially creating a significant impacts to population, infrastructure, social organization and social well-being.

Overall, this alternative would have both positive and negative effects on the social well-being of ranchers. Negative effects to social well-being would occur because some ranchers would lose livestock grazing AUMs from land acquisition and disposal, additional access could be acquired by BLM, and the reintroduction of the black-footed ferret could disrupt current ranch lifestyles. Positive effects to social well-being would occur by some ranchers acquiring livestock grazing land, enhancement of grazing management through riparian and wetland management, resolution of some ORV and access problems, conflicts between livestock and elk could decrease, and controlling prairie dog towns.

The overall effect to the social well-being of recreationists would be positive. Current problems with ORV use and access to BLM lands would be addressed.

The social well-being of some farmers and people associated with some local businesses would be enhanced due to an

increase in the standard of living from economic activity associated with crop production in the Phillips RA.

UNAVOIDABLE ADVERSE IMPACTS

This section summarizes the adverse impacts that would remain if the alternatives are implemented and the mitigating measures developed by BLM are applied. Only those environmental elements with adverse impacts are discussed.

Hardrock Minerals and Oil and Gas

Alternatives A (Current) & B: No unavoidable adverse impacts.

Alternative C: The management prescriptions for the Judith Mountains Scenic Area and Collar Gulch ACECs could preclude certain types of mining activity. This would have an unavoidable adverse impact on mineral development through the loss of development opportunities.

Alternative D: Large areas with No Surface Occupancy restrictions would be a negative impact to the oil and gas industry. The withdrawal of large amounts of land, with hardrock mineral development potential, would have a significant negative impact to mineral exploration and development.

Alternative E (Preferred): The management prescriptions for the Judith Mountains Scenic Area ACEC could preclude certain types of mining activity. This would have an unavoidable adverse impact on some hardrock mineral development opportunities.

Wildlife

Alternative A (Current): Eliminating 9,912 acres (75%) of prairie dog towns in the Phillips RA would adversely affect the opportunity to reintroduce the black-footed ferret.

Hardrock mining activities would have no significant water quality degradation under normal operating conditions. If normal conditions are exceeded, the potential for surface and groundwater contamination is increased with the potential impact to the westslope cutthroat trout population in Collar Gulch Creek.

Alternative B: There would be unmitigated impacts to wildlife on most of 3,269,725 acres through unstipulated oil and gas leasing. Eliminating 6,758 acres (51%) of the prairie dog towns in the Phillips RA would adversely affect the opportunity to reintroduce the black-footed ferret. Mining activities could destroy the value of Azure Cave as an important bat hibernaculum.

Hardrock mining activities would have no significant water quality degradation under normal operating conditions. If normal conditions are exceeded, the potential for surface and groundwater contamination is increased with the potential impact to the westslope cutthroat trout population in Collar Gulch Creek.

Alternative C: Eliminating 1,229 acres (10%) of prairie dogs in the Phillips RA would adversely affect the opportunity to reintroduce the black-footed ferret.

Alternative D: No unavoidable adverse impacts.

Alternative E (Preferred): Hardrock mining activities would have no significant water quality degradation under normal operating conditions. If normal conditions are exceeded, the potential for surface and groundwater contamination is increased with the potential impact to the westslope cutthroat trout population in Collar Gulch Creek.

Recreation

Alternative A (Current): No unavoidable adverse impacts.

Alternative B: The Camp Creek Campground and Azure Cave located in the Little Rocky Mountains, would be adversely affected by revoking the existing withdrawals.

Alternatives C, D & E (Preferred): No unavoidable adverse impacts.

Visual Resources

Alternatives A (Current) & B: The visual quality in the Judith, South Moccasin, and Little Rocky Mountains could be adversely affected from mining claim location, development and other land uses.

Alternatives C, D & E (Preferred): The visual quality in the Little Rocky Mountains could be adversely affected from mining claim location, development and other land uses.

Economic Conditions

Alternative A (Current): There would be a permanent loss of economic activity due to reductions in livestock production from land acquisition and disposal. There would also be a permanent loss of economic activity in the Phillips RA due to the elimination of acreage available for prairie dog shooting.

Alternative B: There would be a permanent loss of economic activity due to reductions in livestock production from land acquisition and disposal. There would also be a

permanent loss of economic activity in the Phillips RA due to reductions in acreage available for prairie dog shooting.

Alternative C: There would be a permanent loss of economic activity due to reductions in livestock production from land acquisition and disposal. There would also be a permanent loss of economic activity in the Phillips RA due to a reduction in acreage available for prairie dog shooting.

Some mineral exploration and development may be foregone in the Judith RA, resulting in lost opportunities for potential future economic activity and tax revenues.

Alternative D: There would be a permanent loss of economic activity due to reductions in livestock production from land acquisition and disposal.

Some mineral exploration and development may be foregone in both the Judith and Phillips RAs, resulting in lost opportunities for potential future economic activity and tax revenues.

Alternative E (Preferred): There would be a permanent loss of economic activity due to reductions in livestock production resulting from land acquisition and disposal.

Some mineral exploration and development may be foregone in the Judith RA, resulting in lost opportunities for potential future economic activity and tax revenues.

Social Conditions

Alternatives A (Current), B, C, D & E (Preferred): Potential increases in the development of hardrock mineral resources could result in significant impacts to population, infrastructure, social organization and social well-being in the Judith and Phillips RAs.

SHORT-TERM USE/LONG-TERM PRODUCTIVITY

This section identifies the trade-offs between short-term use and long-term productivity of the resources involved in the alternatives. Only those environmental elements affected are discussed.

Hardrock Minerals and Oil and Gas

Alternatives A (Current), B & C: There would be no trade-offs between short-term use and long-term productivity of mineral and energy resources.

Alternative D: The withdrawal of large areas with hardrock mineral development potential would negatively affect the

short and long-term mineral production of the region. Changes in mineral economics may not allow for recovery of these resources if the withdrawal is revoked at a later date.

Alternative E (Preferred): There would be no trade-offs between short-term use and long-term productivity of mineral and energy resources.

Air and Water Quality

Alternatives A (Current), B, C, D & E (Preferred): There is a risk of long-term loss of water quality due to heap-leach mining.

Soil and Vegetation

Alternatives A (Current), B, C, D & E (Preferred): Short-term impacts would be mitigated by reclamation measures that would result in long-term soil productivity and vegetation production. There would be a risk of long-term soil productivity loss from improper farming practices on BLM land exchanged and a risk of long-term soil productivity loss as a result of open-pit mining.

Wildlife

Alternative A (Current): ORV use on 2,375,440 acres would harass wildlife and reduce the long-term productivity of wildlife associated with specific habitat types. The long-term loss of prairie dog towns would reduce the likelihood of maintaining a viable population of black-footed ferrets. Mitigation of other short-term impacts would provide for the long-term maintenance of wildlife habitat.

Alternative B: ORV use on 2,687,570 acres would harass wildlife and reduce the long-term productivity of wildlife associated with specific habitat types. The long-term loss of prairie dog towns would reduce the likelihood of maintaining a viable population of black-footed ferrets. Mitigation of other short-term impacts would provide for the long-term maintenance of wildlife habitat.

Alternative C: ORV use on 1,818,437 acres would harass wildlife and reduce the long-term productivity of wildlife associated with specific habitat types. The long-term loss of prairie dog towns would reduce the likelihood of maintaining a viable population of black-footed ferrets. Mitigation of other short-term impacts would provide for the long-term maintenance of wildlife habitat.

Alternative D: Mitigation of short-term impacts would provide for the long-term maintenance of wildlife habitat.

Alternative E (Preferred): ORV use on 1,990,501 acres would harass wildlife during the hunting season and could

reduce the long-term productivity of wildlife associated with specific habitat types. Mitigation of other short-term impacts would provide for the long-term maintenance of wildlife habitat.

Cultural Resources

Alternatives A (Current), B, C, D & E (Preferred): Some cultural properties could be destroyed by ORV use and mining activities.

Recreation

Alternative A (Current): In the long term, no prairie dog towns would be available for shooting as a result of poisoning.

Alternatives B, C & D: In the long term, fewer prairie dog towns would be available for shooting.

Alternative E (Preferred): There would be no trade-offs between short-term use and long-term productivity of recreation.

Visual Resources

Alternative A (Current), B, C & D: In the long-term, visual resources could be negatively impacted in site specific areas from oil and gas, and mining activities.

Alternative E (Preferred): Same as Alternative A, except management prescriptions and/or mitigating measures would help to protect the long-term visual character of the Judith Mountains ACEC.

Economic Conditions

Alternative A (Current): Prairie dog and black-footed ferret management would result in a short-term loss in economic activity due to temporary reductions in livestock production.

There may be a short-term decrease in economic activity associated with hunting if elk and bighorn sheep harvest levels decline to facilitate expansion. Economic activity would increase following expansion.

Alternative B: There may be a short-term increase in economic activity associated with recreation use of Azure Cave. If the cave's resources are degraded from overuse, economic activity may decline.

There may be a short-term increase in economic activity associated with hunting if elk and bighorn sheep harvest levels increase to limit expansion. Economic activity would decline to its former level in the long-term.

Alternative C: Prairie dog and black-footed ferret management would result in a short-term loss in economic activity due to temporary reductions in livestock production.

There may be a short-term decline in economic activity associated with hunting if elk and bighorn sheep harvest levels decline to facilitate expansion. Economic activity would increase following expansion.

Alternative D: Prairie dog and black-footed ferret management would result in a short-term loss in economic activity due to temporary reductions in livestock production.

There may be a short-term decline in economic activity associated with hunting if elk and bighorn sheep harvest levels decline in order to facilitate expansion. Economic activity would increase following expansion.

Alternative E (Preferred): There may be a short-term decline in economic activity associated with hunting if elk and bighorn sheep harvest levels decline in order to facilitate expansion. Economic activity would increase following expansion.

IRREVERSIBLE OR IRRETRIEVABLE RESOURCE COMMITMENTS

This section identifies the extent to which the alternatives would irreversibly limit potential uses of the land and resources or irretrievably use, consume, destroy or degrade those resources. Only those environmental elements with irreversible or irretrievable resource commitments are discussed.

Hardrock Minerals and Oil and Gas

Alternatives A (Current) & B: There would be no irreversible or irretrievable commitment of mineral resources.

Alternative C: Portions of ore bodies not developed due to the protection of visual resources may not be economically recoverable in the future.

Alternative D: Portions of ore bodies not developed due to the large withdrawal acreages may not be economically recoverable in the future.

This alternative could result in lost revenue from drainage by fee and state oil and gas wells. In cases where the federal land could not be committed to an agreement there would be no option to drill a protective well to offset the offending well. Because of the shallow drilling depth to hydrocarbon reservoirs and moderate production rates in the planning area, expensive technology like directional and horizontal drilling is not viable.

Alternative E (Preferred): Portions of ore bodies not developed due to the protection of visual resources may not be economically recoverable in the future.

Wildlife

Alternative A (Current): This alternative could allow impacts that would create irreversible or irretrievable resource commitments (westslope cutthroat trout in Collar Gulch).

The decrease in prairie dog towns would be an irreversible and irretrievable commitment of wildlife habitat, with the possible loss of ferret reintroduction because of insufficient habitat.

Alternative B: This alternative could allow impacts that would create irreversible or irretrievable resource commitments (westslope cutthroat trout in Collar Gulch and the bat hibernaculum in Azure Cave).

The decrease in prairie dog towns would be an irreversible and irretrievable commitment of wildlife habitat, with the possible loss of ferret reintroduction because of insufficient habitat.

Alternative C: This alternative could allow impacts that would create irreversible or irretrievable resource commitments (westslope cutthroat trout in Collar Gulch and fewer prairie dog towns).

Alternative D: There would no irreversible or irretrievable commitment of wildlife habitat.

Alternative E (Preferred): This alternative could allow impacts that would create irreversible or irretrievable resource commitments (westslope cutthroat trout in Collar Gulch).

Visual Resources

Alternatives A (Current) & B: Surface disturbing activities in the Judith, South Moccasin, and Little Rocky Mountains would create irreversible and irretrievable commitments of the scenic qualities in the area.

Alternatives C, D & E (Preferred): Surface disturbing activities in the Little Rocky Mountains would create an irreversible and irretrievable commitment of the scenic qualities in the area.

Economic Conditions

Alternatives A (Current), B, C, D & E (Preferred): Losses in economic activity from reduced livestock production and the elimination of prairie dog towns would be irretrievable, but not irreversible.

FIVE Consultation & Coordination

PUBLIC INVOLVEMENT

Consultation and coordination have been important parts of this planning effort since its beginning in 1988. Public meetings, informational mailings and individual contacts with other governmental agencies, Native American tribes, interest groups and the general public were used to gather information for this RMP/EIS. This information helped identify the issues, planning criteria and alternatives discussed in this document. Consultation and Coordination continued throughout the review of the draft and preparation of the final RMP/EIS.

In the fall of 1988, the Lewistown District Office asked the public to comment on anticipated issues, identify additional issues, conflicting management objectives and potential impacts to adjacent landowners. BLM encouraged written comments through an issue brochure that was mailed to the public in October 1988. In addition, public meetings were held in Glasgow, Malta, Winifred, Winnett and Lewistown in November 1988, with 234 people attending. BLM received 32 letters, 15 issue brochures with comments, 75 comment forms during the public meetings and 38 comment forms following the public meetings. Records and files of this process are available from the Lewistown District Office. Table 5.1 is a summary of steps taken to complete consultation and coordination in this planning effort.

**TABLE 5.1
PUBLIC INVOLVEMENT**

Date	Action
Sept. 1988	A Notice of Intent to prepare an RMP/EIS for the Judith, Valley and Phillips Resource Areas was published in the Federal Register.
Sept. 1988	A letter was sent to permittees, with prairie dog towns, informing them about the prairie dog and black-footed ferret management issue.
Oct. 1988	An issue brochure was sent to 1,897 agencies, organizations and individuals.
Nov. 1988	Public meetings to identify issues were held in Glasgow, Malta, Winifred, Winnett and Lewistown, Montana.
Nov. 1988	A Notice requesting information on coal or other resource information was published in the Federal Register.
Nov. 1988	A letter was sent to 183 organizations requesting coal resource information.
Jan. 1989	A letter was sent to 149 organizations requesting resource information on mineral commodities.
Feb. 1989	A summary of the public comments on planning issues was mailed to 527 agencies, organizations and individuals.
April 1989	Discussion with 85 residents of the planning area on the issues and resource management.
June 1989	A brochure on the issues and planning criteria was mailed to 624 agencies, organizations and individuals.
Feb. 1990	A brochure on the four draft alternatives was mailed to 747 agencies, organizations and individuals requesting input on the alternatives.
Oct. 1990	A brochure on the draft tentative Preferred Alternative was mailed to 980 agencies, organizations and individuals.
July 1991	The draft RMP/EIS was distributed for public comment. Approximately 2,000 copies were distributed during the comment period.
July 1991	Federal Register, EPA Notice of Receipt, beginning the comment period.
July 1991	Public meetings on the draft RMP/EIS.
Aug. 1991	Public meetings on the draft RMP/EIS.
Oct. 1991	Public meetings on the draft RMP/EIS.
Dec. 1991	Public comment period on the draft RMP/EIS closed.

Throughout this planning process BLM conducted numerous briefing updates for a variety of organizations and groups. The District Advisory Council and Grazing Board as well as county commissioners and a variety of citizen organizations were periodically updated as the RMP/EIS progressed.

Another form of consultation and coordination included discussions between BLM and 85 residents of the planning area early in the planning process. These discussions provided an indication of how planning area residents perceive BLM land and the issues discussed in this RMP/EIS.

The Coordinated Resource Management Planning groups, discussed later in this chapter, also provided an extended form of consultation and coordination by closely involving the public with the RMP/EIS process.

Consultation under Section 7 of the Endangered Species Act has been completed with the U.S. Fish and Wildlife Service (FWS). The final RMP/EIS contains the biological assessment and the FWS Biological Opinion on the impacts to threatened and endangered species (see Appendix F).

The following public meetings (including location and date) were held to gather comments on the draft RMP/EIS: Malta (7/23/91); Glasgow (7/24/91); Hays (7/25/91); Winifred (7/29/91); Billings (7/30/91); Winnett (7/31/91); Lewistown (8/1/91); Malta (10/1/91); and Lewistown (10/2/91).

COORDINATED RESOURCE MANAGEMENT PLANNING

A Coordinated Resource Management Planning (CRMP) process was used to address several issues in this RMP/EIS. The intent is to closely involve the public with BLM's planning process by enlisting a cross section of private and public sector individuals to help study and solve a planning issue. The issues receiving CRMP consideration included public access to BLM land, off-road vehicle use, and the management of prairie dogs and the potential reintroduction of black-footed ferrets. A CRMP working group was formed for each of these issues with individuals representing the various interests and attitudes toward each issue. Working group members reviewed background material on the issues, public comments, economic and social conditions and draft alternatives for those issues. The working groups helped develop the draft Preferred Alternative. The following sections provide a summary of the public involvement for each of the three CRMP groups.

Public Access CRMP Group

Members

Leon Carpenter	Lewistown, Montana
Stan Celmer	Public Land Access Association, Inc.
Tom J. DeMars	Rancher, Fergus County
Richard Elsenpeter	Southeast Montana Sportsman Coalition
John Foster	CMR National Wildlife Refuge
Joe Frazier	Lewistown Bowhunters Association
Jim Gamble	Lewistown, Montana
Marlene Hassler	Rancher, Fergus County
Donna Heggem	Fergus County Commissioner
Del Henman	Southeast Montana Sportsman Coalition
Jack Hughes	Rancher, Fergus County
Dick Marshall	Rancher, Petroleum County
Bud Miller	Fergus County Commissioner
Larry Ray	Lewistown, Montana
Craig Roberts	Montana Department of State Lands
Rosey Roseland	Lewistown, Montana
Larry L. Schweitzer	Montana Bowhunters Association
Torger Sikveland	Rancher, Petroleum County
Bill Steele	Lewistown, Montana
Roger Steerman	Lewis and Clark National Forest
Wilson Stulc	Rancher, Fergus County
Bob Watts	Montana Department of Fish, Wildlife and Parks
Bob Weingart	Rancher, Petroleum County
Pat Weingart	Petroleum County Commissioner

Meetings

Date	Action
Nov. 1989	An informational meeting on the access issue, preliminary alternatives and CRMP process.
Dec. 1989	A work group meeting to identify access needs, criteria to identify additional access and priority areas.
Feb. 1990	A work group meeting to recommend a Preferred Alternative.

Recommendations

The CRMP group advised that all BLM land initially identified for legal public access be retained and the following areas should be access priority areas: New Year Peak,

Pyramid Peak, Armells Headwaters, Chicago Gulch, Fox Peak, Lewis Peak, Lookout Peak, Black Butte, South Moccasins, North Moccasins, Missouri Breaks Chain-Buttes area and the Missouri Breaks in Phillips and Valley Counties.

The following criteria were developed to prioritize other access areas:

1. Look at recreation demand in the area and concentrate access to high-use areas.
2. Pursue public access to those areas that have existing (physical) access.
3. Consider the size of an area; look at larger areas first.
4. Evaluate the type of use an area receives, and based on the relative size of an area and the topography, determine the type of public access needed (road or trail).
5. Contact affected and adjacent landowners early in the process concerning the best route and management plan for access.
6. Provide for proper enforcement of any and all access agreements made with landowners to minimize impacts on private land.

In the Missouri Breaks Chain-Buttes area priorities for new or additional access should focus on a formal network of north-south and east-west legal public access roads. It was agreed that the Crooked Creek, Dunn Ridge, Dovetail, Musselshell and Wilder Trail roads should form the basic east-west network and be open to year-round public travel. Major north-south roads identified for an overall formal road network include the Alex Camp, Cottonwood Crossing, Chimney Crossing and Horse Camp roads. Legal public access does not exist to portions of this north-south network.

Prairie Dog and Black-Footed Ferret CRMP Group

BLM used a multi-step process to design a Preferred Alternative for prairie dog and black-footed ferret management. This process involved representatives from the BLM, the FWS, the Montana Department of Fish, Wildlife and Parks (MDFWP) and a CRMP group. Part of this process included meeting with the landowners within the potential reintroduction area. These efforts refined the Preferred Alternative, provided guidance to the FWS and MDFWP for the Cooperative Black-Footed Ferret Reintroduction and Management Plan and meets the USFWS public involvement requirement of the Administrative Procedures Act.

Members

Ken Blunt	Rancher, Phillips County
Don Burke	Rancher, Phillips County
Michael Comstock	International Varmint Association
Ron Crete	US Fish and Wildlife Service
Arnold Dood	Montana Department of Fish, Wildlife and Parks
Candy Kalal	Business, Zortman, Montana
Jim Richard	Montana Wildlife Federation
Ron Scott	Business, Malta, Montana
Dan Wiederrick	Rancher, Phillips County

Meetings

Date	Action
Jan. 1990	An informational meeting on the prairie dog and black-footed ferret issue, existing situation, preliminary alternatives and comments or recommendations.
June 1990	A meeting on the draft Preferred Alternative and public involvement process.
July thru Nov. 1990	Individual meetings with landowners to discuss the draft Preferred Alternative.
Dec. 1990	A briefing on the status of the draft Preferred Alternative for prairie dog and black-footed ferret management.

Recommendations

The Preferred Alternative should consider the following:

1. Continue the present activities (shooting, poison, etc.) during and after reintroduction of the ferret.
2. Manage prairie dogs at some level and prevent expansion.
3. Control all towns by poison on a cyclical basis (8-10 years) and eliminate all new towns.
4. Use range improvements (chiseling, seedings, etc.) to mitigate impacts from prairie dogs.
5. Use land exchanges only as a last resort.
6. Provide prairie dog towns near Malta and Saco for local shooting.
7. Provide for shooting after reintroduction of the ferret.

8. Defer allocation of habitat for the ferret until the Montana Ferret Management Plan is completed.
9. Determine management for prairie dogs outside the reintroduction area described as Complex 7k.
10. Promote shooting in the Valley and Judith Resource Areas.
11. Provide for prairie dog viewing near major highways.
12. Develop a shooting program to provide a quality experience.
13. Develop tools that could be used to mitigate potential impacts to private landowners and permittees and demonstrate control of prairie dog populations.

Off-Road Vehicle CRMP Group

Members

Jim Alfanso	CMR National Wildlife Refuge
Art Arnold	Valley County Commissioner
Ralph Atchley	Montana Army National Guard
Bill Black	Rancher, Valley County
Gary Chambers	Recreation, Valley County
Mark Combs	Recreation, Valley County
Dave Copper	Montana Department of Fish, Wildlife and Parks

Betty Copple	Realty/Rancher, Phillips County
Bud Cornwell	Rancher, Valley County
Lynn Cornwell	Rancher, Valley County
Paul Cornwell	Rancher, Valley County
Connie Cox	Rancher, Phillips County
Mike Crater	Recreation, Valley County
Scott Denson	Montana Department of Fish, Wildlife and Parks

Skip Erickson	Valley County Sportsmen
Joe Etchart	Rancher, Valley County
Owen Funk	Rancher, Valley County
D. M. Garrison	Rancher, Phillips County
Leonard Gilman	Montana Army National Guard
Andy Hicks	Recreation, Valley County
Rick Kinzell	Recreation, Valley County
James Liebelt	Montana Department of Fish, Wildlife and Parks

Scott Markle	Recreation, Valley County
Ted McIntyre	Rancher, Valley County
Keith Morehouse	Recreation, Valley County
Duke Nieskens	Recreation, Valley County
Milton Olsen	Grazing Association
Rob Putzker	Montana Department of State Lands

Jeff Russell	Montana Army National Guard
Steve Schindler	Valley County Sportsmen
Scott Smith	Recreation, Valley County

Lloyd Sundy
Jim Vralsted
Art Warner

Sam Waters
Harold Wentland

Margaret Yeska

Montana Army National Guard
Recreation Valley County
Montana Department of Fish,
Wildlife and Parks
Glasgow Chamber of Commerce
Montana Department of Fish,
Wildlife and Parks
Rancher, Valley County

Meetings

Date	Action
Feb. 1990	An informational meeting on the off-road vehicle issue, existing situation and preliminary alternatives.
Mar. 1990	A work group meeting to identify areas needing limitations and criteria to designate roads and trails open or closed.
Apr. 1990	A work group meeting to recommend a Preferred Alternative.
Aug. 1990	A briefing on the draft Preferred Alternative for off-road vehicles.

Recommendations

The CRMP group recommended county wide limitations from September 1 to December 1. Off-road vehicles should be restricted to existing roads and trails with the following exceptions: allow off-road travel for the handicapped (non-ambulatory), retrieval of game and camping.

Criteria to open or close roads in the future should include: quality hunting (measurable), resource damage and user conflict.

The main concerns of the group were that of enforcement, big game populations in limited areas, retrieval of downed big game, and how we would inform the public of the roads open and closed in limited areas.

PLAN CONSISTENCY

BLM planning regulations require that resource management plans be "consistent with officially approved or adopted resource related plans of other federal agencies, state, and local governments, and Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies, and programs of federal law, and regulations applicable to public lands..." (43CFR1610.3a).

DISTRIBUTION LIST

BLM requested comments on the draft RMP/EIS from interest groups and individuals; from federal, state, local agencies and Native American tribes. The following is a partial list of organizations and agencies that received this document.

County Commissioners and Boards of Planning

Blaine County Commissioners
Chouteau County Commissioners
Fergus County Commissioners
Garfield County Commissioners
Hill County Commissioners
Judith Basin County Commissioners
Petroleum County Commissioners
Phillips County Commissioners
Valley County Commissioners

Montana Chamber of Commerce
Glasgow Chamber of Commerce
Lewistown Chamber of Commerce
Malta Chamber of Commerce

Chouteau County Conservation District
Fergus County Conservation District
Judith Basin County Conservation District
Petroleum County Conservation District
Phillips County Conservation District
Valley County Conservation District

Libraries

Carnegie Public Library
Chouteau County Library
Glasgow City/County Library
Judith Basin County Library
Parmly Billings Library
Petroleum County Community Library
Phillips County Public Library

State

Honorable Stan Stephens
Bureau of Mines and Geology
Department of Agriculture
Department of Health and Environmental Sciences
Department of Fish, Wildlife and Parks
Department of Natural Resources and Conservation
Department of State Lands
Environmental Quality Council
Montana Army National Guard
Montana Cooperative Wildlife Research Unit
Montana Hardrock Impact Board
State Department of Highways
State Historic Preservation Office

Congressional

Honorable Conrad Burns
Honorable Max Baucus
Honorable Pat Williams
Honorable Ron Marlenee

Federal

Advisory Council on Historic Preservation
Bonneville Power Administration
Bowdoin National Wildlife Refuge
Bureau of Indian Affairs
 Blackfeet Agency
 Crow Agency
 Fort Belknap Agency
 Fort Peck Agency
 Northern Cheyenne Agency
 Rocky Boy Agency
 Wind River Agency
Bureau of Mines
Bureau of Reclamation
CMR National Wildlife Refuge
Department of Energy
Department of the Army
Minerals Management Service
National Park Service
Office of Environmental Project Review
Pentagon
Soil Conservation Service
US Army Corps of Engineers
US Border Patrol
US Environmental Protection Agency
US Fish and Wildlife Service
US Forest Service
US Geological Survey

Tribal Councils and Committees

Arapahoe Business Council
Assiniboine/Sioux Tribal Council
Blackfeet Tribal Business Council
Chippewa Cree Business Committee
Crow Tribal Council
Fort Belknap Community Council
Fort Peck Tribal Council
Northern Cheyenne Tribal Council
Shoshone Business Council

Organizations

Alberta Environmental Planning
American Canoe Association
American Fisheries Society
American Mining Congress
American Rivers
American Wilderness Alliance
American Wildlands

Badlands Cooperative State Grazing District
 Bear Paw Sentinel
 Big Open Project
 Billings Rod and Gun Club
 Blue Ribbon Coalition Inc
 Canada Park Service
 Canadian Park Service
 Canadian Wildlife Service
 College of Mineral Science and Technology
 Colorado Division of Wildlife
 Consolidated State Grazing Districts
 Cottonwood Grazing Association
 Defenders of Wildlife
 Department Forestry, Lands and Wildlife-Alberta
 Department of Renewable Resources-Saskatchewan
 Disabled Recreation and Environmental Access Movement
 Ducks Unlimited Inc
 Ecology Center
 Environmental Information Center
 Fauna West Wildlife Consultants
 Fergus County Farm Bureau
 Fishing and Floating Outfitters Association of Montana
 Flathead Wildlife
 Havre Rifle and Pistol Club
 Independent Petroleum Association of Mountain States
 Indian Butte State Grazing District
 International Society for the Protection of Mustangs
 and Burros
 International Varmint Association
 Land and Water Fund
 Lewistown District Grazing Advisory Board
 Lewistown Rod and Gun Club
 Malta Bowhunters
 Malta Wildlife Club
 Milk River Land and Cattle Association
 Minerals Exploration Coalition
 Minnesota-MT Cattlemen's Association
 Missouri Breaks Bowhunters
 Missouri Breaks Multiple Use Association
 Montana Association of State Grazing Districts
 Montana Audubon Council
 Montana Black Footed Ferret Working Group
 Montana Bowhunters
 Montana Bowhunters Association-Region 6
 Montana Environmental Information Center
 Montana Farm Bureau
 Montana Geological Society
 Montana Historical Society
 Montana Mining Association
 Montana Native Plant Society
 Montana Natural Heritage Program
 Montana Nature Conservancy
 Montana Petroleum Association
 Montana Policy Center
 Montana Preservation Alliance
 Montana Public Lands Council
 Montana State University

Montana Stockgrowers Association
 Montana Wilderness Association
 Montana Wildlands Coalition
 Montana Wildlife Federation
 Montana Woolgrowers
 National Audubon Society
 National Audubon Society - Upper Missouri Valley Chapter
 National Audubon Society - Yellowstone Valley Chapter
 National Wildlife Federation
 Natural Resources Defense Council
 Nature Conservancy
 Nebraska Game and Parks Commission
 New Mexico Dept of Game and Fish
 New York Zoological Society
 North Dakota Game and Fish
 North Phillips County Cooperative Grazing District
 Northern Montana College
 Northern Montana Oil and Gas Association
 Northern Plains Resource Council
 Northern Rockies Conservation Cooperative
 Northwest Federation of Mineralogical Societies
 Northwest Mining Association
 Northwest Rivers Council
 Phillips County Grazing District
 Phillips County Livestock Association
 Political Economy Research Center
 Public Land Access Inc
 Public Lands Council
 Rocky Mountain Elk Foundation
 Rocky Mountain Mineral Law Foundation
 Rocky Mountain Oil and Gas Association
 Rocky Mountain Overthrust Energy Foundation
 Sierra Club
 Silver Dollar Grazing Association
 Society of Mining Engineers
 South Dakota Dept of Game Fish and Parks
 South Phillips County State Cooperative Grazing District
 Southeastern Montana Sportsmans Association
 Square Butte Grazing Association
 State Grazing District Association
 Trout Unlimited
 Trust for Public Land
 University of Alberta
 University of Nebraska
 Utah Division of Wildlife Resources
 Valley County Development Council
 Valley County Grazing Districts
 Waterton Lakes National Park
 Western Environmental Trade Association
 Wilderness Society
 Wilderness Watch
 Wildlife Society
 Winnett State Grazing District
 Wittmayer Grazing Association
 World Wildlife Fund Canada
 Valley County Sportmen's Club
 Yellowstone Valley Audubon Society

Businesses

Adkins Ranch Inc
AGRI-NEWS
Amax Exploration
American Colloid Company
American Copper and Nickel Company, Inc
Amoco Production Company
Antelope Ranch
Atcheson Outfitting
Barthelmess Ranch Inc
Beil Ranch Inc
Berg Lumber Company
Betz Ranch
BI LO JI Farms Inc
Big Blue Sapphire Company
Big Flat Electric Cooperative Inc
Big View Ranch
Billings Gazette
Biota Research and Consulting
Black Ranch Inc
Blatter Ranch
Blue Range Engineering Company
Blue Range Mining Company
Blunt Ranches Inc
Bohn Ranch
Boucher Ranch Inc
Bozeman Chronicle
Brocksmith Land and Livestock Company
Bruckner Farms Inc
Canen Ranch Inc
Canyon Resources Corporation
Captive Breeding Specialist Group
Casino Creek Concrete
Chemical Dependency Center
Chevron Resource Company
Christensen and Hubble Attorneys at Law
Cimarron Exploration
Coast to Coast
College Park Medical Center
Cominco American Resources
Conoco Inc
Copper Petroleum
Cornwell Ranch
CR Kendall
Cyprus Minerals
Deer Valley Ranch
Doane-Western and Aetna Realty Investment Company
Double O Ranch Inc
ECON Inc
Economic Consultants Northwest
Eickhoff Ranch
Elenburg Exploration
Engstrom Ranch Inc
Environmental Media Centre
Etchart Ranch
Explosives Technologies International
Exxon Company USA
Falcon Oil and Gas Company Inc
Farm Credit Services
Fauna West Wildlife Consultants
Fergus Electric Cooperative Inc
First Creek Ranch
First National Bank-Glasgow
First State Bank-Malta
FMP Operating Company
Francis J McCarvel Attorney at Law
Fraser Land and Livestock
Fuel Resources Development Company
Funk Ranch Inc
Gateway Simmentals
Georesearch Inc
Geortz Brothers Farming
Gerspacher Ranch
Glasgow Courier
Gold Cup Exploration Inc
Gordons Warehouse
Great Falls Tribune
Havre Answering Service
High Country News
Hinsdale Livestock and N3 Company
Homestake Mining Inc
Horizon Gold Shares
Hughes Livestock Company
Hydrometrics Inc
Iverson Ranch-Dovetail
James D Rector Attorney at Law
J.D. Lumber, Inc
Jenni Ranch
Joe King and Sons Inc
John Hancock Mutual Life Insurance Co
Johnson Family Partnership
Johnson Ranch Inc
Judith Gold Corporation
Kelly Ranch
Kendall Venture
KLCM-FM/KXLO-AM
KLTZ/KLAN Radio
K-M Livestock Company
KMMR FM Radio
KN Energy
Konitz Contracting Inc
KVCK/KYZZ
Larcon and Haroldson
Lawrence J McCarthy and Association
Lazy J5 Ranch Company
Lazy JD Cattle Company
LCM, Ltd
Lehmann and Associates
Lewistown Insurance
Little Rockys Inc
Loving U Ranch Inc
Lund Ranch Inc
M Cross Cattle Company
Magma Copper
Marathon Oil

Marian River Electric Coop Inc
 Matador Ranch Inc
 McColly Ranch Inc
 McIntyre Ranch Inc
 Meridian Oil Production Inc
 Montana Oil Journal
 Montana Power Company
 Montana Ranch Products
 Montco
 Mountain Moods
 N A Degerstrom Inc
 News Argus
 Norman Ranch
 North American Exploration Inc
 Northern Ag Service
 Office Suppliers
 Peabody Development Company
 Pegasus Gold Corporation
 Peterson Ranch & Feedlot
 Phillips Bar Diamond Ranch
 Phillips Cattle Company
 Phillips County News
 PN Ranch
 Prairie Wind Architecture
 Rector & Hickel Attorneys at Law
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 Robert Westland Association
 Robinson Ranch
 Rocky Ridge Ranch Inc
 Salsberry Family Limited Partnership
 Sand Creek Ranch
 Schammel Ranch
 Schell, Stephens, Riley and Huffine CPAs
 Schlenker and Carry Livestock Inc
 Schlumberger Well Service
 Schultz Ranch
 Scott's Track and Wheel
 Setter Mining Company Inc
 Shell Oil Company
 Snowy Mountain Recreation Products
 Socha Cattle Company
 Stillwater PGM Resources
 Surenuff Cattle
 Swanson Ranch Inc
 Swinging H Cattle Company
 TEE Bar Land & Livestock Inc
 Teigen Land & Livestock Company
 Tex Inc
 Texaco Inc
 The Hanson Ranch
 Timm Ranch Inc
 Triangle Telephone Coop Association Inc
 Triple "L" Ranch Inc
 Union Pacific Resources Company
 Veseth and Veseth Livestock Inc
 Wesco Resources Inc
 Westech Inc

Western Energy Company
 Western Environmental Trade Association
 Whiting Petroleum Corporation
 Wicks Ranch Corporation
 Williston Basin Interstate Pipeline Company
 Winnett Times
 Wittmayer Grazing
 Y3 Cattle Company
 Zortman Mining Company

The final RMP/EIS was also mailed to an additional 1,000 individuals.

LIST OF PREPARERS

The draft RMP/EIS was prepared by a BLM interdisciplinary team of resource specialists from the Judith Resource Area, Valley Resource Area, Phillips Resource Area, Lewistown District Office and Montana State Office.

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ACCESS. Access is the physical ability to reach a particular place or area. For the public to legally have access to BLM land, they must have both a physical way to get there (waterway, foot/horse trail, or road) and permission (easement, right-of-way, or management sanction) allowing that particular type of physical access.

ACTIVITY PLAN. A detailed and specific plan for a single resource program to implement the more general resource management plan (RMP) decisions.

AIRSHED.

Class I Area. Any area which is designated for the most stringent degree of protection from future degradation of air quality. The Clean Air Act designates as mandatory Class I areas each national park over 6,000 acres and each national wilderness area over 5,000 acres.

Class II Area. Any area cleaner than federal air quality standards which is designated for a moderate degree of protection from future air quality degradation. Moderate increases in new pollution may be permitted in a Class II area.

Class III Area. Any area cleaner than federal air quality standards which is designated for a lesser degree of protection from future air quality degradation. Significant increases in new pollution may be permitted in Class III area.

ALLOTMENT. An area of land where one or more livestock operators graze their livestock. Allotments generally consist of BLM lands but may also include state owned and private lands. An allotment may include one or more separate pastures. Livestock numbers and seasons of use are specified for each allotment.

ALLOTMENT MANAGEMENT PLAN (AMP). A document prescribing the manner in and extent to which livestock grazing is conducted and managed in a geographic area to meet objectives as determined through the resource management plan (RMP).

ANIMAL UNIT MONTH (AUM). A standardized measurement of the amount of forage necessary for the complete sustenance of one animal for one month; also the measurement of the privilege of grazing one animal for one month.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). An area where special attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes; or to protect life and safety from natural hazards.

AVOIDANCE AREA. Land areas that pose particular land use or environmental impacts which would be difficult or impossible to mitigate. The corresponding definition for the Montana Major Facility Siting Act is a geographic area or location specified in ARM 36.7.2504, ARM 36.7.2533, and ARM 36.7.2535 where construction or operation of a facility will likely damage the significant environmental values peculiar to the area or where environmental constraints may pose siting or construction problems and where these values or constraints have received formal public recognition or designation or are in the process of being designated at the time the application is filed.

BROWSE. To browse is to graze a plant; also, browse (noun) is the tender shoots, twigs and leaves of trees and shrubs often used as food by cattle, deer, elk and other animals.

COMPACTION. The process of packing firmly and closely together; the state of being so packed, e.g., mechanical compaction of soil by livestock or vehicular activity. Soil compaction results from particles being pressed together so that the volume of the soil is reduced. It is influenced by the physical properties of the soil, moisture content and the type and amount of compactive effort.

CRITICAL HABITAT. Any habitat, which if lost, would appreciably decrease the likelihood of the survival and recovery of a threatened or endangered species, or a distinct segment of its population. Critical habitat may represent any portion of the present habitat of a listed species and may include additional areas for reasonable population expansion. Critical habitat must be officially designated as such by the Fish and Wildlife Service or the National Marine Fisheries Service.

CRUCIAL WILDLIFE HABITAT. Parts of the habitat necessary to sustain a wildlife population at critical periods of its life cycle. This is often a limiting factor on the population, such as breeding habitat, winter habitat, etc.

CULTURAL PROPERTY. A definite location of past human activity, occupation, or use identifiable through

field inventory, historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) or traditional cultural or religious importance to specified social and/or cultural groups.

CULTURAL RESOURCES. A term that includes items of historical, archaeological or architectural significance which are fragile, limited and non-renewable portions of the human environment.

CULTURAL RESOURCE MANAGEMENT PLAN (CRMP). An activity plan in which the determinations made in a resource management plan (RMP) are developed into specific management decisions. CRMP development has two products: the allocation of all of the planning area's cultural resources to use categories and the establishment of related protection and information gathering priorities.

DEVELOPED RECREATION SITE. A site developed primarily to accommodate specific intensive use activities or grouping of activities such as camping, picnicking, boating, swimming, winter sports, etc. These sites include permanent facilities such as roads, trails, toilets, and other facilities needed to accommodate recreation use over the long term.

ECOLOGICAL SITE. An area of land with a specific potential plant community and specific physical site characteristics, differing from other areas of land in its ability to produce vegetation and to respond to management. Ecological site is synonymous with range site.

ECOLOGICAL STATUS. The present state of vegetation and soil protection of an ecological site in relation to the potential plant community for the site. Vegetation status is the expression of the relative degree to which the kinds, proportions, and amounts of plants in a community resemble that of the potential plant community. The four ecological status classes correspond to 0-25, 26-50, 51-75, or 76-100 percent similarity to the potential plant community and are generally called early seral, mid-seral, late seral, and potential plant community, respectively.

ENDANGERED OR THREATENED SPECIES. Determined for plants and animals by one or a combination of the following factors:

1. The present or threatened destruction, modification or curtailment of a species habitat or range.
2. Over-utilization of a species for commercial, sporting, scientific or educational purposes.
3. Disease or predation of the species.
4. The inadequacy of existing regulatory mechanisms.
5. Other natural or human caused factors affecting a species' continued existence.

ENVIRONMENTAL ASSESSMENT. A concise public document for which a Federal agency is responsible that serves to:

1. Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.
2. Aid an agency's compliance with the Act when no environmental impact statement is necessary.
3. Facilitate preparation of a statement when one is necessary. Shall include brief discussions of the need for the proposal, of alternatives as required by Sec. 102(2) (e), of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

ENVIRONMENTAL IMPACT STATEMENT (EIS). A detailed written statement as required by Sec. 102(2) (C) of the National Environmental Protection Act.

EPHEMERAL STREAM. A stream or stretch of a stream that flows only in direct response to precipitation. It receives no water from springs and no long-continued supply from melting snow or other surface source. Its stream channel is at all times above the water table. These streams do not flow continuously during periods of as much as one month.

EROSION SUSCEPTIBILITY. The susceptibility of a soil to erosion when no cover is present. The rate of soil displacement depends on the physical properties of the soil, rainfall intensity and slope gradient.

EXCHANGE. A conveyance of lands and interests therein from the United States to a person at the same time there is a conveyance of lands and interests therein from the person to the United States.

EXCLUSION AREAS. Land areas determined to be unavailable for corridor allocation or facility siting. Only those areas with a legal Congressional mandate that excludes linear facilities should be included. The corresponding definition for the Montana Major Facility Siting Act is a geographic area specified in ARM 36.7.2503 and ARM 36.7.2532 legally designated for its environmental values and having legally defined boundaries wherein facility construction or operation is prohibited, excepting those portions of the area where permission to site a facility has been obtained from the legislative or administrative unit of government with direct authority over the area.

EXTENSIVE RECREATION MANAGEMENT AREA. BLM administrative units where recreation management is only one of several management objectives and where limited commitment of resources is required to provide extensive and unstructured type of recreation activities. They may contain recreation sites.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA). Public Law 94-579, October 21, 1976, often referred to as the BLM's "Organic Act," which provides the majority of the BLM's legislated authority, direction, policy and basic management guidance.

FISCAL CONDITIONS. Fiscal conditions includes payments-in-lieu of taxes and property taxes.

GROUNDWATER. Water contained in pore spaces of consolidated and unconsolidated subsurface material.

HABITAT MANAGEMENT PLAN (HMP). A written and approved activity plan for a geographical area that identifies wildlife habitat management actions to be implemented to achieving specific objectives identified in the RMP.

INTERIM MANAGEMENT POLICY AND GUIDELINES FOR LANDS UNDER WILDERNESS REVIEW (IMP). A BLM Handbook H-8550-1 dated November 10, 1987, which defines the policy for management of Wilderness Study Areas until a final determination on wilderness designation is made by Congress.

INTERMITTENT STREAM. A stream or stretch of stream which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow in mountainous or other cold tributary areas. They are usually divided with respect to the source of their water into spring-fed or surface-fed intermittent streams. These streams generally flow continuously during periods of at least one month or more during the year.

ISOLATED TRACT. A tract of one or more contiguous legal subdivisions completely surrounded by lands held in non-Federal ownership or so effectively separated from other federally-owned lands by some permanent withdrawal or reservation as to make its use with such lands impracticable. A tract is considered isolated if the contiguous lands are all patented, even though there are other public lands cornering upon the tract. The term "cornering" refers to lands having a common survey corner but not a common boundary.

LEASABLE MINERALS. Those minerals or materials that can be leased from the federal government. Includes oil and gas, coal, phosphate, sodium, potash, and oil shale.

LINEAL RIGHTS-OF-WAY. Lineal rights-of-way are described in terms of length and width. The length will generally be a fixed statistic. Width, however, is more judgmental. Width multiplied by length equates to the right-of-way "area of use."

LOCATABLE MINERALS. Minerals or materials subject to disposal and development through the Mining Law of

1872 (as amended). Generally includes metallic minerals such as gold and silver and other materials not subject to lease or sale (some bentonites, limestone, talc, some zeolites, etc.).

MANAGEMENT ACTIONS. Any actions proposed to preserve a resource, increase or decrease production and/or use, regulate or minimize depletion of resources, or improve the conditions of a resource through application of professionally recognized methods, techniques, or treatments.

MANAGEMENT FRAMEWORK PLAN (MFP). A planning decision document prepared before the effective date of the regulations implementing the land use planning provisions of the FLPMA, which establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, and objectives to be achieved for each class of land-use or protection. Until replaced by RMP's, MFP's, including those completed in the transition period, are used as a basis for management action as provided for in 43 CFR 1610.8.

MANAGEMENT SITUATION ANALYSIS (MSA). An unpublished companion document to this RMP that provides the background documentation for the development of alternatives. The MSA consists of the Resource Area Profile, Existing Management Situation, Existing Resource Situation, and Opportunity Analysis.

MECHANICAL TREATMENTS. Treatment by mechanical means of an area of range including contour furrowing, pitting, plowing and seeding, chiseling, scalping, water spreaders, etc. to accomplish desired objectives.

MINERAL MATERIALS. Includes common varieties of mineral resources which are not locatable under the mining law nor leasable under the leasing laws. Examples include: sand and gravel, rip rap, building stone, decorative stone, and construction material.

MITIGATION MEASURES. Methods or procedures committed to by BLM for the purpose of reducing or lessening the impacts of an action.

MONITOR. To watch or check. Rangeland resources are monitored for changes that occur as a result of management actions or practices.

MULTIPLE USE. Balanced management of the various surface and subsurface resources, without permanent impairment of the productivity of the land, that will best meet present and future needs.

NET WILLINGNESS TO PAY. An economic term that represents the value derived from the purchase of a good or service that is over and above the actual expenditure for that good or service. Also termed net economic value.

NONDISCRETIONARY NO MINERAL ENTRY AREA. Those lands closed to mineral entry by formal regulation, legislation or withdrawal. Within these areas the BLM's legal authority to allow mineral entry is suspended.

OFFSITE WATER FACILITIES. The transport of water away from the source (well, spring, reservoir, etc.) via a pipeline to a stock water tank. The source would be exclosed to prevent damage and contamination by livestock and wildlife.

OFF-ROAD VEHICLE (ORV). Any motorized track or wheeled vehicle designed for cross-country travel over any type of natural terrain.

OFF-ROAD VEHICLE DESIGNATIONS.

Open: Designated areas and trails where off-road vehicles may be operated, subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343; or an area where all types of vehicle use is permitted at all times, subject to the standards in BLM Manuals 8341 and 8343.

Limited: Designated areas and trails where the use of off-road vehicles is subject to restrictions such as limiting the number or types of vehicles allowed, dates and times of use (seasonal restrictions), limiting use to existing roads and trails, or limiting use to designated roads and trails. Under the designated roads and trails designation, use would be allowed only on roads and trails that are signed for use.

Combinations of restrictions are possible such as limiting use to certain types of vehicles during certain times of the year.

Closed: Designated areas and trails where the use of off-road vehicles is permanently or temporarily prohibited. The use of off-road vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the authorized officer.

ONE-TIME EXPENDITURE. An expenditure that is incurred once only, such as a capital expenditure for a piece of equipment or construction of a reservoir. These types of costs would be in contrast to ongoing costs such as annual budget expenditures for labor, rent, building maintenance, etc.

PERENNIAL STREAM. A stream or stretch of a stream that flows continuously. They are generally fed in part by springs, and their upper surface generally stand lower than the water table in localities through which they flow.

PERMIT (GRAZING). An authorization that permits the grazing of a specified number and kind of livestock on a designated area of BLM lands for a period of time, usually not more than one year.

PLANNING CRITERIA. The factors used to guide development of the resource management plan, or revision, to ensure that it is tailored to the issue previously identified and to ensure that unnecessary data collection and analysis are avoided. Planning criteria are developed to guide the collection and use of inventory data and information, the analysis of the management situation, the design and formulation of alternatives, the estimation of the effects of alternatives, the evaluation of alternatives, and the selection of the preferred alternative.

POTENTIAL NATURAL COMMUNITY (PNC). The plant community that would be established if all successional sequences were completed without interference by man under the present environment conditions. PNC is generally synonymous with the climax community.

PROPER FUNCTIONING CONDITION. Riparian-wetland areas are functioning properly when they dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment and aid floodplain development; improve floodwater retention and ground water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl, breeding, and other uses; and support greater biodiversity.

PUBLIC LANDS. Any land and interest in land (outside of Alaska) owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management.

PUBLIC PARTICIPATION. Part of BLM's planning system that provides the opportunity for citizens as individuals or groups to express local, regional, and national perspectives and concerns in the rule making, decision making, inventory and planning, processes for public lands. This includes public meetings, hearings, or advisory boards or panels that may review resource management proposals and offer suggestions or criticisms for the various alternatives considered.

RANGE CONDITION. The present state of vegetation of a range site in relation to the climax plant community of that site. It is an expression of the relative degree to which the kinds, proportions and amounts of plants in a plant community resemble that of the climax plant community for that site. Range condition is basically an ecological rating of the plant community. Air-dry weight is the unit of measure used in comparing the composition and production of the present plant community with that of the climax community.

RANGE DEVELOPMENT. A structure, excavation, treatment or development to rehabilitate, protect or improve public lands to advance range betterment. "Range Development" is synonymous with "Range Improvement."

RANGE FACILITIES. Any structure or excavation such as water sources, shade sources, oilers, etc. designed to facilitate range management.

RANGE SITE. A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. A range site is the product of all the environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differs from that of other range sites in the kind or proportion of species or in total production.

RANGE TREND. The direction of change in range condition and soil.

RECREATION AND PUBLIC PURPOSES ACT (R&PP ACT). This act authorizes the Secretary of the Interior to lease or convey public lands for recreational and public purposes under specified conditions of states or their political subdivisions, and to nonprofit corporations and associations.

RESOURCE MANAGEMENT PLAN. The system that provides a step-by-step process for considering multiple resource values, resolving conflicts, and making resource management decisions.

RESOURCE OBJECTIVES. The desired state or condition that a resource management policy or program is designed to achieve. A goal is usually not quantifiable and may not have a specific date by which it is to be completed. Goals are the basis from which objectives are developed.

RETENTION AREA. An area where public land will generally remain in public ownership and be managed by the BLM. Transfers to other public agencies will be considered where improved management efficiency would result. Minor adjustments involving sales or exchanges or both may be permitted based on site-specific application of the land ownership adjustment criteria.

RIPARIAN AREA. An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence or vegetation dependent upon free water in the soil.

ROAD. A two-track route established from use of four-wheeled vehicles over a period of time; or a route constructed for access by four-wheeled motorized vehicles larger than 50" in width but not maintained annually; or a route maintained periodically for access by four-wheeled vehicles larger than 50" in width.

RUNOFF. The water that flows on the land surface from an area in response to rainfall or snowmelt. As used in this EIS, runoff from an area becomes streamflow when it reaches a channel.

SALEABLE MINERALS. High volume, low value mineral resources including common varieties of rock, clay, decorative stone, sand and gravel.

SEASON OF USE. The time of livestock grazing on a range area based on type of vegetation or stage of vegetative growth.

SEASONAL (SEASON LONG) GRAZING. Grazing use throughout a specific season.

SEDIMENT. Soil, rock particles and organic or other debris carried from one place to another by wind, water or gravity.

SEDIMENTATION. The action or process of deposition of material borne by water, wind or glacier.

SEGREGATION. The removal for a limited period, subject to valid existing rights, of a specified area of the public lands from the operation of the public land laws, including the mining laws, pursuant to the exercise by the Secretary of the Interior of regulatory authority as conferred by law to allow for the orderly administration of the public lands.

SEMI-DEVELOPED CAMPSITES. Areas with some capital improvements and camping use is fairly frequent.

SENSITIVE SPECIES. Animals/plants not yet listed as endangered or threatened, but that are undergoing a status review. This may include animals/plants whose populations are consistently and widely dispersed or whose ranges are restricted to a few localities, so that any major habitat change could lead to extinction. A species that is particularly sensitive to some external disturbance factors.

SERAL COMMUNITY. A seral community is any community that is not at potential.

<i>Degree of Similarity to PNC</i>	<i>Ecological Status</i>	<i>Range Condition Class</i>
76% - 100%	PNC	Excellent
51% - 75%	Late Seral	Good
26% - 50%	Mid Seral	Fair
0% - 25%	Early Seral	Poor

SOIL. The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.

SOIL MOISTURE. Water held in the root zone by capillary action. Part of the soil moisture is available to plants, part is held too tightly by capillary or molecular forces to be removed by plants.

STIPULATIONS. These are conditions or requirements attached to a lease or contract that apply in addition to standard stipulations (see below). They frequently provide

additional protection of the environment from resource developments, e.g., coal mining, oil and gas development. Special stipulations become effective by their specification on a RMP.

SPECIAL RECREATION MANAGEMENT AREA (SRMA). BLM administrative units established to direct recreation program priorities, including the allocation of funding and personnel, to those BLM lands where a commitment has been made to provide specific recreation activity and experience opportunities on a sustained yield basis. This includes a long-term commitment to manage they physical, social, and managerial settings to sustain these activity and experience opportunities.

SPECIES OF SPECIAL INTEREST OR CONCERN. Species not yet listed as “endangered or threatened” but whose status is being reviewed because of their widely dispersed populations or their restricted ranges. A species whose population is particularly sensitive to external disturbance.

STABILIZED. To reduce accelerated erosion rates to natural geologic erosion rates.

STANDARD STIPULATIONS. These are conditions or requirements attached to a lease or contract that detail specific actions to be taken or avoided during resource development, e.g., coal mining, oil and gas development. They usually provide basic protection of the environment.

STREAMBANK (and CHANNEL) EROSION. This is the removal and transport of material by concentrated flows.

THREATENED SPECIES. A species that the Secretary of Interior has determined to be likely to become endangered within the foreseeable future throughout all or most of its range. See also “Endangered or Threatened Species.”

TOTAL DISSOLVED SOLIDS. The dry weight of dissolved material, organic and inorganic, contained in water.

TOTAL ECONOMIC ACTIVITY. This includes direct expenditures for the purchase of goods and services plus secondary spending activity that results from the initial expenditures.

TOTAL ECONOMIC BENEFIT. Total economic benefit includes total economic activity plus the net willingness to pay for recreation opportunities.

TRAIL. A single track route that accommodates non-motorized use, or motorized equipment that is less than 50" wide.

TRANSPORTATION PLAN. A plan showing all existing and planned access routes needed to use, protect and administer the public lands.

UNDEVELOPED RECREATION SITE. A site which is used for intensive activities such as camping or picnicking but was not specifically developed for that purpose. The facilities are usually temporary in nature, designed to minimize resource damage and provide for short-term use.

UNNECESSARY OR UNDUE DEGRADATION. Surface disturbance greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character and taking into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations.

VALID EXISTING RIGHTS. Legal interests that attach to a land or mineral estate that cannot be divested from the estate until that interest expires or is relinquished.

VEGETATION (GROUND) COVER. The percent of land surface covered by all living vegetation (and remnant vegetation yet to decompose) within 20 feet of the ground.

VISUAL RESOURCE MANAGEMENT CLASSES. The degree of acceptable visual changes within a characteristic landscape. A class is based upon the physical and sociological characteristics of any given homogeneous area and serves as a management objective.

WATER QUALITY. The chemical, physical and biological characteristics of water with respect to its suitability for a particular use.

WATERSHED. All lands which are enclosed by a continuous hydrologic drainage divide and lie upslope from a specified point on a stream.

WETLANDS. Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and which, under normal circumstances, does support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include shallows, swamps, lakeshores, bogs, muskegs, wet meadows, estuaries, and riparian areas.

WILDERNESS STUDY AREA (WSA). An area determined to have wilderness characteristics. Study areas will be subject to interdisciplinary analysis and public comment to determine wilderness suitability. Suitable areas will be recommended to the President and Congress for wilderness designation.

WINDOWS. Usually short narrow passageways through constrained areas which are the most feasible potential locations for linear facilities, considering engineering and/or environmental factors.

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Appendices

APPENDIX A

LAND ACQUISITION AND DISPOSAL

Acquisition Criteria

General Criteria for Acquisition

1. Facilitate access to areas retained for long term public use.
2. Enhance congressionally designated areas, rivers or trails.
3. Facilitate national, state and local BLM priorities or mission statement needs.
4. Stabilize or enhance local economies or values.
5. Meet long term public land management goals as opposed to short term.
6. Be of sufficient size to improve use of adjoining public lands or, if isolated, large enough to allow identified potential public land use.
7. Enhance the opportunity for new or emerging public land uses or values.
8. Contribute to a wide spectrum of uses or large number of public land users.
9. Facilitate management practices, uses, scale of operations or degrees of management intensity that are viable under economic program efficiency standards.
10. Secure for the public significant water related land interest. These interests will include lake shore, river front, stream, pond or spring sites.
11. Agricultural lands that would be in the public interest (i.e. management for lure crops).
12. Riparian areas in I and M allotments and important wetland areas.

Program Specific Acquisition Criteria

Minerals

1. Consolidation of mineral estates.
2. Acquisition in response to a federal project need, as in the case of a dam project. Criteria for this type of acquisition would generally include:
 - a. Where development of the federal project would preclude the mineral estate owner from exercising development rights, or
 - b. Where the exercise of the mineral estate owners right of development would materially interfere with the federal project.

Livestock Management

Acquire non-federal holdings in I and M allotments which will enhance manageability and investment opportunity.

Forestry

Focus acquisition priority on areas:

1. Which exceed 30 cu. ft/acre in growth of commercial timber unless the areas will enhance the harvest of adjacent lands.
2. Contiguous to, or which facilitate access to public forest land.
3. Containing 80 acres or more of commercial timber.
4. Containing enough harvestable volume for a feasible commercial logging unit after physical, biological or other land use constraints are considered.

Recreation

Acquire land with the following significant values:

1. National values such as congressionally designated areas, rivers, or trails.
2. State values that enhance recreation trails and waterways or the interstate, state, and multi-county use
3. Local values for extensive use, such as hunting, fishing, ORV and snowmobile use.

Wilderness

Acquire in-holdings within the boundaries of Congressionally designated wilderness areas under BLM administration.

Cultural Resources

Any cultural site to be acquired should meet the following evaluation standards: high research value, moderate scarcity, possess some unique values such as association with an important historic person or high aesthetic value, or contribute significantly to interpretive potential of cultural resources already in public ownership.

Wildlife Habitat Management

Areas for acquisition will be lands with significant wildlife values as defined below. These areas may be of any size.

1. Threatened and Endangered Species.
 - a. Federally listed species.
 - b. Federal candidate species.
 - c. State listed species of special concern.
2. Fisheries.
3. Big Game. Important habitat such as crucial winter areas in I and M allotments with native habitat and associated spring/fall transition areas, kidding/fawning/calving/lambing areas, crucial wallow complexes, mineral licks, and security areas.
4. Upland Game Birds, Migratory Birds and Waterfowl. Crucial breeding, nesting, resting, roosting, feeding, and wintering habitat areas or complexes.
5. Raptors. Existing and potential nesting areas for sensitive species or significant nesting complexes for nonsensitive complexes.
6. Nongame. Crucial habitat complexes.

Disposal Criteria

Parcels of BLM land are identified for disposal through exchange under the authority of Section 206 of FLPMA. The management objective is to use the disposal parcels to meet the acquisition goals shown for each alternative. The following criteria were used to identify parcels for disposal:

1. Lands of limited public value.
2. Widely scattered parcels which are difficult for BLM to manage with anything beyond minimal custodial administration and have no significant values (i.e. category C allotments).
3. Lands with high public values proper for management by other federal agencies, or state or local government.
4. Land which would aid in aggregating or repositioning other public lands or public land resource values in retention areas to facilitate national, state and local objectives.

Each parcel used in an exchange is subject to certain conditions before disposal: hazardous waste, wilderness, wildlife and riparian/wetland evaluations, cultural and mineral clearances and reports. The results of the evaluations and reports are included in an environmental analysis. A notice of realty action is subsequently published. Parcels are removed from the disposal list if the clearances, reports, or environmental analysis show any resource values worth retaining.

Table A.1 identifies the lands that meet the above criteria and the clearances or reports completed for each parcel. The disposal list is organized by Resource Area and the clearances or reports completed. The following codes are used for the conditions.

Cultural Report Status = CUL

- C = cultural report completed with no sites reported
- S = cultural report completed with sites reported that BLM would dispose of
- X = no cultural report completed

Mineral Report Status = MIN

- Y = mineral report completed
- N = no mineral report completed

Wildlife Clearance Status = WIL

- Y = wildlife clearance completed
- N = no wildlife clearance completed

General Land Exchange Procedures (12 to 24 months)

1. Informal discussion of exchange proposal between BLM and non-federal party.
2. Preliminary title evidence on non-federal land is requested and reviewed by BLM.
3. Preliminary estimate of values is completed by BLM State Office Appraisers and reviewed by exchange parties.
4. A decision is reached by BLM and/or non-federal party to proceed or vacate the exchange proposal.
5. BLM conducts resource evaluations and prepares necessary reports.
6. Final appraisal is conducted by BLM Appraisers.
7. BLM issues a decision notice which begins the comment period.
 - a. notices are published in the Federal Register and local newspapers.
 - b. copies of the notice are sent to State and county governmental subdivisions having authority in the geographical area.
 - c. copies of the notice are distributed to other interested agencies, organizations, groups and/or private individuals.
8. Comments are analyzed by BLM and a decision is made to continue or vacate the exchange proposal.
9. Final Title Insurance Policy on non-federal land is received.
10. BLM Solicitor reviews title evidence and other documents and issues a final title opinion.
11. Titles are transferred.
12. New titles are recorded in the county courthouse.

General Sale Methods and Procedures (12 to 24 months)

A. Three Methods of Sale

1. Competitive Sale: Where a number of interested parties would be bidding on BLM land.
2. Modified Competitive Sale: Allows the existing grazing user and/or adjacent landowner to meet the highest bid.
3. Direct Sale: Where BLM land is sold directly to one individual, corporation or other entity.

B. Procedures

1. BLM lands are identified for sale in a land use plan.
2. Appraisal is conducted by BLM Appraisers.
3. BLM issues a Notice of Realty Action (NORA) which begins the comment period.
 - a. notices are published in the Federal Register and local newspapers.
 - b. notices are sent to the appropriate State Representative and to U.S. Senators for the State.
 - c. notices are sent to the State (Governor) and county governmental subdivisions having authority in the geographical area.
 - d. notices are sent to other interested agencies, organizations, groups and/or private individuals, including current land users and adjacent landowners.
4. BLM identifies bidders if sale is a Competitive or Modified Competitive.
5. BLM conducts sale if Competitive or Modified Competitive.
6. BLM notifies apparent high bidder of acceptance of the high bid. If sale is Modified Competitive, grazing users and/or adjacent landowners are notified of their opportunity to match the highest bid.
7. BLM prepares and issues patent.
8. BLM sends notice of conveyance to the Governor and local government.

TABLE APPENDIX A.1
Lands Identified for Disposal
Under the Preferred Alternative

JUDITH RESOURCE AREA

All clearances and reports have been completed.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
F-164	200	12N	21E	Y	C	Y
F-152	960	12N	24E	Y	C	Y
F-165	160	14N	21E	Y	C	Y
F-103	33	16N	18E	Y	C	Y
F-161	160	19N	22E	Y	C	Y
F-172	80	19N	23E	Y	C	Y
JC-028	515	22N	14E	Y	C	Y

Wildlife and cultural clearances completed. No mineral report.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
F-117	320	15N	21E	Y	C	N
F-119	40	15N	22E	Y	C	N
F-121	320	15N	22E	Y	C	N
F-129	160	15N	24E	Y	C	N
JB-018	40	16N	11E	Y	C	N
JB-019	80	16N	11E	Y	C	N
F-092	198	16N	17E	Y	C	N
F-112	200	16N	22E	Y	C	N
F-159	40	17N	21E	Y	C	N
F-095	80	17N	22E	Y	C	N
F-101	40	17N	23E	Y	C	N
F-073	120	18N	21E	Y	C	N
F-074	40	18N	22E	Y	C	N
F-087	80	18N	26E	Y	C	N
JB-001	400	19N	10E	Y	C	N
F-052	640	19N	19E	Y	C	N
F-062	40	19N	22E	Y	C	N
F-065	40	19N	22E	Y	C	N
F-174	160	19N	24E	Y	C	N
PE-001	80	19N	28E	Y	C	N
JC-061	80	20N	13E	Y	C	N
F-035	120	20N	15E	Y	C	N
F-037	80	20N	16E	Y	C	N
F-038	40	20N	17E	Y	C	N
F-044	170	20N	20E	Y	C	N
JC-035	240	21N	06E	Y	C	N
JC-039	40	21N	09E	Y	C	N
JC-040	40	21N	09E	Y	C	N
JC-064	40	21N	09E	Y	C	N
JC-047	40	21N	10E	Y	C	N
JC-056	40	21N	14E	Y	C	N
F-018	120	21N	16E	Y	C	N
F-020	80	21N	17E	Y	C	N
F-019	441	21N	17E	Y	C	N
F-021	360	21N	17E	Y	C	N
F-026	199	21N	20E	Y	C	N
F-031	40	21N	21E	Y	C	N
F-006	122	22N	18E	Y	C	N
F-158	880	22N	18E	Y	C	N
F-156	40	22N	19E	Y	C	N
F-010	80	22N	20E	Y	C	N
F-001	40	22N	20E	Y	C	N

Parcels cleared for wildlife. Cultural resources present but not significant. A mineral report has not been completed.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
F-171	240	13N	20E	Y	S	N
F-163	726	13N	22E	Y	S	N
F-173	280	13N	24E	Y	S	N
F-126	320	15N	23E	Y	S	N
JB-017	111	16N	10E	Y	S	N
JB-016	80	16N	11E	Y	S	N
JB-005	40	17N	08E	Y	S	N
F-034	165	20N	14E	Y	S	N
F-036	400	20N	16E	Y	S	N
F-002	360	22N	15E	Y	S	N
F-004	200	22N	17E	Y	S	N
F-005	120	22N	17E	Y	S	N
F-008	40	22N	19E	Y	S	N

Wildlife clearance completed. No cultural clearance or mineral report.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
JB-032	40	11N	15E	Y	X	N
F-148	136	12N	17E	Y	X	N
PE-030	80	12N	26E	Y	X	N
PE-031	160	12N	26E	Y	X	N
PE-032	680	12N	27E	Y	X	N
PE-035	778	12N	29E	Y	X	N
PE-034	320	12N	29E	Y	X	N
PE-037	480	12N	30E	Y	X	N
PE-036	284	12N	30E	Y	X	N
PE-040	720	12N	30E	Y	X	N
F-140	40	13N	17E	Y	X	N
F-139	40	13N	17E	Y	X	N
F-141	45	13N	18E	Y	X	N
F-204	39	13N	20E	Y	X	N
F-162	720	13N	21E	Y	X	N
F-166	289	13N	22E	Y	X	N
F-184	86	13N	22E	Y	X	N
F-150	40	13N	23E	Y	X	N
F-145	1201	13N	23E	Y	X	N
F-170	320	13N	23E	Y	X	N
F-205	240	13N	23E	Y	X	N
F-147	40	13N	24E	Y	X	N
PE-025	80	13N	27E	Y	X	N
PE-024	1000	13N	27E	Y	X	N
PE-026	781	13N	28E	Y	X	N
PE-027	812	13N	28E	Y	X	N
PE-029	40	13N	29E	Y	X	N
PE-028	1355	13N	29E	Y	X	N
JB-028	40	14N	12E	Y	X	N
JB-029	120	14N	12E	Y	X	N
JB-027	80	14N	12E	Y	X	N
F-169	40	14N	20E	Y	X	N
F-135	40	14N	21E	Y	X	N
F-202	480	14N	21E	Y	X	N
F-138	330	14N	22E	Y	X	N
F-137	152	14N	22E	Y	X	N
F-136	207	14N	22E	Y	X	N

PE-022	1520	14N	22E	Y	X	N
F-203	500	14N	22E	Y	X	N
F-143	240	14N	23E	Y	X	N
F-144	40	14N	24E	Y	X	N
PE-020	774	14N	27E	Y	X	N
PE-021	320	14N	27E	Y	X	N
PE-019	720	14N	27E	Y	X	N
PE-023	360	14N	29E	Y	X	N
PE-041	80	14N	29E	Y	X	N
JB-023	40	15N	10E	Y	X	N
JB-026	40	15N	11E	Y	X	N
JB-025	40	15N	11E	Y	X	N
JB-024	121	15N	11E	Y	X	N
F-114	40	15N	19E	Y	X	N
F-116	320	15N	20E	Y	X	N
F-115	40	15N	20E	Y	X	N
F-106	320	15N	21E	Y	X	N
F-123	328	15N	22E	Y	X	N
F-122	380	15N	22E	Y	X	N
F-118	240	15N	22E	Y	X	N
F-120	372	15N	22E	Y	X	N
F-124	680	15N	23E	Y	X	N
F-128	200	15N	23E	Y	X	N
F-127	520	15N	23E	Y	X	N
F-130	160	15N	24E	Y	X	N
F-131	481	15N	24E	Y	X	N
PE-055	40	15N	25E	Y	X	N
PE-014	80	15N	27E	Y	X	N
PE-012	120	15N	27E	Y	X	N
PE-013	248	15N	27E	Y	X	N
PE-017	200	15N	28E	Y	X	N
PE-015	560	15N	28E	Y	X	N
PE-016	120	15N	28E	Y	X	N
PE-057	40	15N	28E	Y	X	N
PE-018	520	15N	29E	Y	X	N
PE-056	40	15N	29E	Y	X	N
PE-058	31	15N	30E	Y	X	N
JB-012	20	16N	08E	Y	X	N
JB-015	40	16N	10E	Y	X	N
JB-014	80	16N	10E	Y	X	N
JB-013	40	16N	10E	Y	X	N
JB-020	40	16N	11E	Y	X	N
JB-021	114	16N	14E	Y	X	N
F-102	120	16N	17E	Y	X	N
F-104	35	16N	20E	Y	X	N
F-111	526	16N	21E	Y	X	N
F-105	40	16N	21E	Y	X	N
F-109	40	16N	22E	Y	X	N
F-108	100	16N	22E	Y	X	N
F-113	502	16N	23E	Y	X	N
PE-042	16	16N	24E	Y	X	N
PE-052	40	16N	27E	Y	X	N
PE-053	40	16N	28E	Y	X	N
PE-054	40	16N	29E	Y	X	N
JB-006	400	17N	08E	Y	X	N
JB-009	40	17N	11E	Y	X	N
JB-008	40	17N	11E	Y	X	N
JB-007	40	17N	11E	Y	X	N
JB-011	80	17N	14E	Y	X	N
F-091	40	17N	15E	Y	X	N
F-183	80	17N	15E	Y	X	N
F-094	161	17N	22E	Y	X	N

F-096	40	17N	22E	Y	X	N	F-192	160	20N	23E	Y	X	N	JC-006	560	25N	12E	Y	X	N
F-098	320	17N	23E	Y	X	N	F-191	160	20N	23E	Y	X	N	JC-005	120	25N	12E	Y	X	N
F-100	80	17N	23E	Y	X	N	F-194	360	20N	25E	Y	X	N	JC-001	80	26N	12E	Y	X	N
F-099	161	17N	23E	Y	X	N	F-193	360	20N	25E	Y	X	N							
F-097	120	17N	23E	Y	X	N	PE-047	120	20N	27E	Y	X	N							
PE-008	756	17N	24E	Y	X	N	JC-036	120	21N	08E	Y	X	N							
PE-007	80	17N	24E	Y	X	N	JC-041	81	21N	09E	Y	X	N							
PE-051	40	17N	24E	Y	X	N	JC-042	40	21N	09E	Y	X	N							
PE-010	519	17N	25E	Y	X	N	JC-043	40	21N	09E	Y	X	N							
PE-009	280	17N	25E	Y	X	N	JC-045	420	21N	09E	Y	X	N							
PE-011	291	17N	25E	Y	X	N	JC-037	40	21N	09E	Y	X	N							
JB-004	40	18N	10E	Y	X	N	JC-044	160	21N	09E	Y	X	N							
JB-033	40	18N	12E	Y	X	N	JC-046	40	21N	10E	Y	X	N							
F-067	413	18N	19E	Y	X	N	JC-049	29	21N	11E	Y	X	N							
F-069	400	18N	20E	Y	X	N	JC-050	47	21N	11E	Y	X	N							
F-072	160	18N	20E	Y	X	N	JC-051	13	21N	11E	Y	X	N							
F-077	120	18N	22E	Y	X	N	JC-052	40	21N	11E	Y	X	N							
F-078	307	18N	23E	Y	X	N	JC-053	40	21N	11E	Y	X	N							
F-079	159	18N	23E	Y	X	N	JC-048	15	21N	11E	Y	X	N							
F-084	560	18N	24E	Y	X	N	JC-054	120	21N	14E	Y	X	N							
F-082	40	18N	24E	Y	X	N	JC-055	40	21N	14E	Y	X	N							
F-085	328	18N	25E	Y	X	N	F-022	81	21N	18E	Y	X	N							
F-086	160	18N	26E	Y	X	N	F-178	80	21N	19E	Y	X	N							
F-088	319	18N	26E	Y	X	N	F-015	757	21N	20E	Y	X	N							
PE-006	320	18N	26E	Y	X	N	F-028	320	21N	20E	Y	X	N							
F-089	320	18N	26E	Y	X	N	F-027	720	21N	20E	Y	X	N							
F-182	40	18N	26E	Y	X	N	F-033	40	21N	21E	Y	X	N							
PE-003	720	18N	27E	Y	X	N	F-032	40	21N	21E	Y	X	N							
PE-050	80	18N	27E	Y	X	N	F-030	40	21N	21E	Y	X	N							
PE-004	203	18N	28E	Y	X	N	F-189	40	21N	22E	Y	X	N							
PE-049	240	18N	28E	Y	X	N	JC-023	160	22N	06E	Y	X	N							
JB-002	80	19N	10E	Y	X	N	JC-022	360	22N	06E	Y	X	N							
F-047	120	19N	12E	Y	X	N	JC-025	46	22N	09E	Y	X	N							
PE-002	82	19N	18E	Y	X	N	JC-024	80	22N	09E	Y	X	N							
F-051	720	19N	19E	Y	X	N	JC-026	21	22N	10E	Y	X	N							
F-050	480	19N	19E	Y	X	N	JC-027	40	22N	13E	Y	X	N							
F-168	317	19N	19E	Y	X	N	JC-031	80	22N	14E	Y	X	N							
F-056	158	19N	21E	Y	X	N	JC-033	400	22N	14E	Y	X	N							
F-055	430	19N	21E	Y	X	N	JC-029	80	22N	14E	Y	X	N							
F-206	40	19N	21E	Y	X	N	JC-034	81	22N	14E	Y	X	N							
F-064	360	19N	22E	Y	X	N	JC-030	40	22N	14E	Y	X	N							
F-061	40	19N	22E	Y	X	N	JC-032	40	22N	14E	Y	X	N							
F-063	40	19N	22E	Y	X	N	F-003	160	22N	16E	Y	X	N							
F-060	320	19N	22E	Y	X	N	F-175	360	22N	17E	Y	X	N							
F-199	160	19N	23E	Y	X	N	F-185	80	22N	18E	Y	X	N							
F-200	160	19N	23E	Y	X	N	F-007	80	22N	19E	Y	X	N							
F-198	160	19N	23E	Y	X	N	F-176	160	22N	19E	Y	X	N							
F-201	160	19N	23E	Y	X	N	F-013	400	22N	20E	Y	X	N							
F-196	433	19N	24E	Y	X	N	F-016	200	22N	21E	Y	X	N							
F-195	205	19N	25E	Y	X	N	F-017	320	22N	21E	Y	X	N							
F-066	480	19N	26E	Y	X	N	F-188	120	22N	21E	Y	X	N							
F-197	40	19N	26E	Y	X	N	F-177	200	22N	21E	Y	X	N							
PE-048	80	19N	29E	Y	X	N	F-187	120	22N	21E	Y	X	N							
JC-066	2	20N	08E	Y	X	N	F-186	200	22N	21E	Y	X	N							
JC-057	28	20N	10E	Y	X	N	JC-018	80	23N	06E	Y	X	N							
JC-060	41	20N	12E	Y	X	N	JC-019	40	23N	07E	Y	X	N							
JC-058	220	20N	12E	Y	X	N	JC-020	40	23N	08E	Y	X	N							
JC-059	190	20N	12E	Y	X	N	JC-065	40	23N	08E	Y	X	N							
JC-062	231	20N	13E	Y	X	N	JC-021	40	23N	14E	Y	X	N							
JC-063	160	20N	13E	Y	X	N	JC-012	80	24N	09E	Y	X	N							
F-155	160	20N	19E	Y	X	N	JC-013	40	24N	10E	Y	X	N							
F-046	154	20N	20E	Y	X	N	JC-015	45	24N	11E	Y	X	N							
F-045	267	20N	20E	Y	X	N	JC-016	120	24N	13E	Y	X	N							
F-043	160	20N	20E	Y	X	N	JC-017	40	24N	13E	Y	X	N							
F-042	350	20N	20E	Y	X	N	JC-002	40	25N	10E	Y	X	N							
F-041	880	20N	20E	Y	X	N	JC-004	40	25N	11E	Y	X	N							
F-040	120	20N	20E	Y	X	N	JC-009	80	25N	12E	Y	X	N							
F-157	33	20N	21E	Y	X	N	JC-008	160	25N	12E	Y	X	N							
F-190	80	20N	23E	Y	X	N	JC-007	121	25N	12E	Y	X	N							

PHILLIPS RESOURCE AREA

Wildlife and cultural clearances completed. No mineral report.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
P-053	200	33N	33E	Y	C	N

Wildlife clearance and mineral report completed. No cultural clearance.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
P-019	40	34N	29E	Y	X	Y
P-020	640	34N	29E	Y	X	Y
P-018	160	34N	29E	Y	X	Y
P-021	240	34N	29E	Y	X	Y
P-022	160	34N	30E	Y	X	Y
P-027	40	34N	33E	Y	X	Y

Mineral report completed. No wildlife clearance or cultural report.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
P-009	320	35N	34E	N	X	Y
P-008	119	36N	33E	N	X	Y

Wildlife clearance completed. No cultural clearance or mineral report.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
P-177	400	24N	26E	Y	X	N
P-183	245	25N	22E	Y	X	N
P-182	815	25N	23E	Y	X	N
P-131	309	27N	27E	Y	X	N
P-117	482	29N	27E	Y	X	N
P-118	160	29N	27E	Y	X	N
P-115	126	29N	28E	Y	X	N
P-089	361	30N	27E	Y	X	N
*P-090	0	30N	27E	Y	X	N
*P-091	0	30N	27E	Y	X	N
P-088	120	30N	28E	Y	X	N
P-080	240	31N	27E	Y	X	N
P-081	320	31N	28E	Y	X	N
P-066	160	32N	27E	Y	X	N
P-075	320	32N	33E	Y	X	N
P-077	83	32N	34E	Y	X	N
P-058	40	33N	27E	Y	X	N
P-056	80	33N	33E	Y	X	N
P-054	200	33N	33E	Y	X	N
P-055	40	33N	33E	Y	X	N
P-050	160	33N	34E	Y	X	N
P-048	40	33N	34E	Y	X	N
P-026	40	34N	31E	Y	X	N
P-025	40	34N	31E	Y	X	N
P-028	40	34N	33E	Y	X	N
P-035	40	34N	33E	Y	X	N
P-029	40	34N	33E	Y	X	N
P-030	400	34N	33E	Y	X	N
P-032	320	34N	33E	Y	X	N
P-034	480	34N	33E	Y	X	N
P-038	80	34N	34E	Y	X	N

P-016	40	35N	27E	Y	X	N
P-017	40	35N	27E	Y	X	N
P-014	320	35N	31E	Y	X	N
P-013	400	35N	31E	Y	X	N
P-033	440	34N	33E	Y	X	N

No clearances completed.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
P-181	600	24N	23E	N	X	N
P-180	2495	24N	24E	N	X	N
P-179	400	24N	26E	N	X	N
P-173	80	24N	28E	N	X	N
P-174	120	24N	28E	N	X	N
P-172	80	24N	29E	N	X	N
P-170	160	24N	29E	N	X	N
P-171	558	24N	29E	N	X	N
P-169	640	24N	31E	N	X	N
P-176	40	25N	27E	N	X	N
P-175	80	25N	27E	N	X	N
P-166	40	25N	30E	N	X	N
P-163	678	25N	31E	N	X	N
P-164	200	25N	32E	N	X	N
P-162	80	25N	33E	N	X	N
P-161	479	25N	33E	N	X	N
P-160	80	25N	33E	N	X	N
P-141	942	26N	26E	N	X	N
P-142	320	26N	27E	N	X	N
P-144	40	26N	28E	N	X	N
P-147	1120	26N	28E	N	X	N
P-143	654	26N	28E	N	X	N
P-146	160	26N	28E	N	X	N
P-145	160	26N	28E	N	X	N
P-148	480	26N	28E	N	X	N
P-150	160	26N	29E	N	X	N
P-188	320	26N	29E	N	X	N
P-149	355	26N	29E	N	X	N
P-154	40	26N	32E	N	X	N
P-153	40	26N	32E	N	X	N
P-157	2160	26N	32E	N	X	N
P-156	160	26N	32E	N	X	N
P-158	480	26N	32E	N	X	N
P-152	40	26N	32E	N	X	N
P-151	39	26N	32E	N	X	N
P-155	80	26N	32E	N	X	N
P-159	233	26N	33E	N	X	N
P-135	480	27N	27E	N	X	N
P-136	400	27N	27E	N	X	N
P-137	80	27N	27E	N	X	N
P-134	160	27N	27E	N	X	N
P-133	320	27N	27E	N	X	N
P-132	80	27N	27E	N	X	N
P-138	240	27N	28E	N	X	N
P-139	233	27N	28E	N	X	N
P-140	209	27N	30E	N	X	N
P-122	53	28N	26E	N	X	N
P-123	80	28N	29E	N	X	N
P-130	1400	28N	29E	N	X	N
P-129	240	28N	29E	N	X	N
P-128	960	28N	29E	N	X	N
P-124	40	28N	29E	N	X	N
P-126	640	28N	30E	N	X	N
P-125	1760	28N	30E	N	X	N
P-127	2552	28N	30E	N	X	N
*P-120	0	29N	26E	N	X	N
P-121	146	29N	26E	N	X	N
P-119	1600	29N	27E	N	X	N
P-113	201	29N	29E	N	X	N
P-107	120	29N	29E	N	X	N

P-106	320	29N	29E	N	X	N
P-108	1160	29N	29E	N	X	N
P-103	480	29N	29E	N	X	N
P-105	230	29N	29E	N	X	N
P-112	640	29N	29E	N	X	N
P-111	3012	29N	29E	N	X	N
P-110	360	29N	29E	N	X	N
P-109	120	29N	29E	N	X	N
P-098	40	29N	30E	N	X	N
P-099	320	29N	30E	N	X	N
P-102	320	29N	30E	N	X	N
P-101	1680	29N	30E	N	X	N
P-100	480	29N	30E	N	X	N
P-095	640	29N	31E	N	X	N
P-096	103	29N	31E	N	X	N
P-097	200	29N	31E	N	X	N
P-087	160	30N	27E	N	X	N
P-086	80	30N	27E	N	X	N
P-092	80	30N	29E	N	X	N
P-093	760	30N	31E	N	X	N
P-094	832	30N	31E	N	X	N
P-078	280	31N	27E	N	X	N
P-079	722	31N	27E	N	X	N
P-082	240	31N	30E	N	X	N
P-084	280	31N	33E	N	X	N
P-085	120	31N	34E	N	X	N
P-083	120	31N	34E	N	X	N
P-063	80	32N	26E	N	X	N
P-064	640	32N	26E	N	X	N
P-065	280	32N	26E	N	X	N
P-067	80	32N	27E	N	X	N
P-069	40	32N	28E	N	X	N
P-070	120	32N	28E	N	X	N
P-068	40	32N	28E	N	X	N
P-072	80	32N	28E	N	X	N
P-071	320	32N	28E	N	X	N
P-074	80	32N	33E	N	X	N
P-076	160	32N	33E	N	X	N
P-186	40	32N	33E	N	X	N
P-073	320	32N	34E	N	X	N
P-060	80	33N	27E	N	X	N
P-059	80	33N	27E	N	X	N
P-057	400	33N	32E	N	X	N
P-052	121	33N	33E	N	X	N
P-051	41	33N	33E	N	X	N
P-046	577	33N	34E	N	X	N
P-049	320	33N	34E	N	X	N
P-047	40	33N	34E	N	X	N
P-024	80	34N	31E	N	X	N
P-023	80	34N	31E	N	X	N
P-185	240	34N	31E	N	X	N
P-043	40	34N	34E	N	X	N
P-045	160	34N	34E	N	X	N
P-044	80	34N	34E	N	X	N
P-037	78	34N	34E	N	X	N
P-039	40	34N	34E	N	X	N
P-040	120	34N	34E	N	X	N
P-041	40	34N	34E	N	X	N
P-042	200	34N	34E	N	X	N
P-114	400	35N	28E	N	X	N
P-010	399	35N	33E	N	X	N
P-011	80	35N	33E	N	X	N
P-015	320	36N	27E	N	X	N
P-006	618	36N	27E	N	X	N
P-007	48	36N	33E	N	X	N
P-001	80	37N	32E	N	X	N
P-002	172	37N	32E	N	X	N
P-003	160	37N	32E	N	X	N
P-005	40	37N	33E	N	X	N

P-004	160	37N	33E	N	X	N
**P-187	6441	Various		N	X	N

VALLEY RESOURCE AREA

Wildlife and cultural clearances completed. No mineral report.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
V-037	40	30N	37E	Y	C	N

Wildlife clearance completed. No cultural clearance or mineral report.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
V-026	160	27N	40E	Y	X	N
V-024	200	28N	41E	Y	X	N
V-032	240	29N	37E	Y	X	N
V-020	1285	29N	40E	Y	X	N
V-021	480	29N	40E	Y	X	N
V-023	40	29N	41E	Y	X	N
V-022	505	29N	41E	Y	X	N
V-019	596	33N	39E	Y	X	N
V-018	640	34N	40E	Y	X	N
V-033	600	35N	39E	Y	X	N
V-014	120	35N	39E	Y	X	N
V-015	160	35N	39E	Y	X	N
V-017	320	35N	40E	Y	X	N
V-013	360	35N	42E	Y	X	N
V-027	200	36N	39E	Y	X	N
V-010	136	36N	40E	Y	X	N
V-011	472	36N	40E	Y	X	N
V-009	320	36N	41E	Y	X	N
V-012	360	36N	42E	Y	X	N
V-007	318	36N	42E	Y	X	N
V-008	560	36N	42E	Y	X	N
V-004	440	37N	39E	Y	X	N
V-005	320	37N	41E	Y	X	N
V-003	160	37N	41E	Y	X	N
V-006	640	37N	42E	Y	X	N
V-001	320	37N	42E	Y	X	N
V-002	160	37N	42E	Y	X	N

No clearances completed.

PARCEL	ACRES	TWN	RNG	WIL	CUL	MIN
V-079	151	24N	34E	N	X	N
**V-080	185	28N	39E	N	X	N
V-073	80	26N	40E	N	X	N
V-077	40	28N	34E	N	X	N
V-074	40	28N	38E	N	X	N
V-031	63	29N	37E	N	X	N
V-030	1800	29N	37E	N	X	N
V-029	480	29N	38E	N	X	N
V-028	40	29N	39E	N	X	N
V-041	601	30N	35E	N	X	N
V-042	320	30N	35E	N	X	N
V-076	298	30N	35E	N	X	N
V-040	616	30N	36E	N	X	N
V-039	360	30N	36E	N	X	N
V-034	40	30N	37E	N	X	N
V-047	240	30N	38E	N	X	N
V-048	318	30N	38E	N	X	N
V-046	160	30N	38E	N	X	N
V-078	640	30N	39E	N	X	N
V-075	2880	30N	41E	N	X	N
V-043	648	31N	34E	N	X	N

V-038	558	31N 34E	N	X	N
V-035	162	31N 35E	N	X	N
V-049	320	31N 37E	N	X	N
V-050	280	31N 37E	N	X	N
V-051	640	31N 37E	N	X	N
V-052	200	31N 37E	N	X	N
V-058	1001	32N 35E	N	X	N
V-072	40	32N 35E	N	X	N
V-045	120	32N 35E	N	X	N
V-036	40	32N 35E	N	X	N
V-044	340	32N 35E	N	X	N
V-057	911	32N 36E	N	X	N
V-055	480	32N 36E	N	X	N
V-054	2321	32N 36E	N	X	N
V-053	827	32N 37E	N	X	N
V-061	600	33N 35E	N	X	N
V-059	362	33N 35E	N	X	N
V-060	120	33N 35E	N	X	N
V-056	481	33N 36E	N	X	N
V-064	80	34N 35E	N	X	N
V-066	400	34N 35E	N	X	N
V-065	400	34N 35E	N	X	N
V-067	320	34N 35E	N	X	N
V-070	200	34N 35E	N	X	N
V-071	160	34N 35E	N	X	N
V-063	120	34N 35E	N	X	N
V-062	404	34N 35E	N	X	N
V-016	1100	34N 39E	N	X	N
V-069	40	35N 35E	N	X	N
V-068	440	35N 35E	N	X	N
V-025	470	36N 40E	N	X	N

* Acreage for P-090 and P-091 included in P-089. Acreage for P-120 included in P-119.

** Acreage proposed for revocation by BR.

APPENDIX B

OIL AND GAS LEASING AND DEVELOPMENT

INTRODUCTION

This appendix describes the oil and gas leasing and development program in the planning area. In particular it contains the reasonable foreseeable development (RFD) for oil and gas and the stipulations that would be applied under each alternative. The first part of the appendix is the RFD followed by the stipulations that would apply under the alternatives.

STIPULATION SUMMARY

Alternative A would apply the standard oil and gas lease stipulations (Form MT-3109-1). Alternative B would only apply the standard terms and conditions which apply to all federal leases under all the alternatives (Federal Onshore Oil and Gas Leasing Reform Act of 1987, existing Notice to Lessees, Onshore Orders and regulations). Alternative C would apply the BLM Montana oil and gas stipulations (IM MT-90-220, Change 2). Alternative D would apply the BLM Montana oil and gas stipulations but would include a No Surface Occupancy (NSO) restriction for wildlife protection rather than a seasonal or distance stipulation. Alternative E, the Preferred Alternative, would apply the BLM Montana oil and gas stipulations with the following exceptions:

1) Grouse Leks and Grouse Nesting Zone

A. Grouse Leks: No Surface Occupancy for the lek (1/4 acre) rather than No Surface Occupancy within 1/4 mile of the lek.

B. Grouse Nesting Zone: Seasonal restriction on exploration from March 15 to June 15, for a distance of 1/4 mile from lek rather than surface use prohibited from March 1 to June 15 within 2 miles of a lek.

This stipulation provides protection for the lek and surrounding habitat during the period when grouse activity is occurring. The use of this time and distance requirement has worked well in the past, allowing for short-duration drilling while protecting important grouse habitat. Use of this level of protection for ten years has demonstrated that stipulations that are more restrictive or cover larger areas are not necessary to protect the species.

2) Designated Black-footed Ferret Reintroduction Areas: Controlled surface use for prairie dog towns within designated black-footed ferret areas.

The purpose of this stipulation is to preserve the prairie dog towns where the black-footed ferret would be reintroduced. The revised stipulation is an acceptable level of protection. It is preferable to NSO stipulations for the entire 7km Complex rather than the prairie dog towns. The actual towns, while much smaller than the 7km Complex, are fully adequate for ferret populations.

3) Ferruginous Hawks: Surface use is prohibited from March 1 to August 1, within 1/2 mile of raptor nest sites which have been active within the last 2 years rather than surface occupancy and use prohibited all year.

The revised stipulation is consistent with the guidelines used in the West Hiline and Headwaters RMPs which border the planning area on the North and West making its use uniform throughout the Lewistown District. This stipulation can be implemented at the time of an onsite inspection for drilling permits and sundry notices which involve surface disturbance activity which would be disruptive to the nesting species. A stipulation which addresses occupied nests is more easily documented as to species and duration of use.

The historical activity in the planning area, associated with oil and gas exploration and development, involves shallow wells with small areas of surface disturbance and lasting for short duration. The proposed stipulation would afford adequate protection to the species.

4) VRM Class III and IV Areas: Standard terms and conditions would apply (200 meters or 60 days) rather than requirements for special design including location, painting and camouflage to blend with the natural surroundings. Painting

requirements are part of routine conditions of approval for drilling permits.

5) Cultural Resources (Notice): The guidance would follow NTL-MSO-85-1 rather than an additional Notice on inventory requirements.

This would be consistent with the present Montana guidance for cultural resource protection related to oil and gas operations (NTL-MSO-85-1).

The stipulations under each alternative are summarized in Table B.1.

Each stipulation also includes waivers, exceptions and modifications. The definitions for waivers, exceptions and modifications are as follows:

Waiver - The lifting of a stipulation from a lease which constitutes a permanent revocation of the stipulation from that time forward. This is usually a substantial change and requires a 30 day posting of the action for public involvement before the permitting activity associated with the process can be approved.

Exception - This is a one time lifting of the stipulation to allow a permitting activity for a specific proposal. It has no permanent effect on the lease stipulation and would not constitute a substantial change to the stipulation and requires no posting.

Modification - This is a change to a stipulation which either temporarily suspends the stipulation requirement or permanently lifts the application of the stipulation on a given portion of the lease. It may or may not require posting based on whether or not the change is determined to be substantial by the authorized officer.

TABLE B.1
SUMMARY OF OIL AND GAS STIPULATIONS

	<u>Alternative A</u> 500 feet NSO	<u>Alternative B</u> 200 Meters or 60 Days*	<u>Alternative C</u> ¼ Mile NSO Lek	<u>Alternative D</u> ¼ Mile NSO Lek	<u>Alternative E</u> ¼ Acre NSO Lek 3/15 to 6/15 for ¼ Mile around the lek for nesting
Grouse Lek					
Grouse Nest	3/1 to 6/30 timing for nest	200 Meters or 60 Days	3/1 to 6/15 2 Mile timing	3/1 to 6/15 2 Mile NSO	See Grouse Lek
Raptor Nests	3/1 to 8/1 ¼ Mile timing	200 Meters or 60 Days	3/1 to 8/1 ¼ Mile timing Drilling	3/1 to 8/1 ¼ Mile timing Drilling	3/1 to 8/1 ¼ Mile NSO Drilling
Ferret	¼ Mile from T&E Habitat	200 Meters or 60 Days	NSO for Complex 1 & Complex 2	NSO for the 7km Complex	Controlled surface use for Prairie Dog Towns within the 7km Complex
Prairie Dog	T&E Species Consultation	200 Meters or 60 Days	Ferret Inventory	Ferret Inventory	200 Meter or 60 Days
Least Tern	¼ Mile from T&E Habitat	200 Meters or 60 Days	¼ Mile NSO	¼ Mile NSO	¼ Mile NSO
Piping Plover	¼ Mile from T&E Habitat	200 Meters or 60 Days	¼ Mile NSO	¼ Mile NSO	¼ Mile NSO
Peregrine Falcon	¼ Mile from T&E Habitat	200 Meters or 60 Days	1 Mile NSO	1 Mile NSO	1 Mile NSO
Ferruginous Hawk	¼ Mile from T&E Habitat	200 Meters or 60 Days	¼ Mile NSO	¼ Mile NSO	see Raptor Nests

TABLE B.1 (continued)
SUMMARY OF OIL AND GAS STIPULATIONS

	<u>Alternative A</u>	<u>Alternative B</u>	<u>Alternative C</u>	<u>Alternative D</u>	<u>Alternative E</u>
Crucial Winter Range	12/1 to 5/15 Timing Drilling**	200 Meters or 60 Days	12/1 to 3/31 Timing Drilling	NSO	12/1 to 3/31 Timing Drilling
Bald Eagle	¼ Mile from T&E Habitat	200 Meters or 60 Days	½ Mile NSO	½ Mile NSO	½ Mile NSO
Fishing Reservoirs	500 feet NSO	200 Meters or 60 Days	¼ Mile NSO	¼ Mile NSO	¼ Mile NSO
Riparian/Hydrology	200 Meters or 60 Days	200 Meters or 60 Days	NSO for sites	NSO for Sites	NSO for Sites
Soils	NSO Wet Periods	200 Meters or 60 Days	30% Slope Reclamation Plan	30% Slope Reclamation Plan	30% Slope Reclamation Plan
Land Uses (R&PP/leases)	200 Meters or 60 Days	200 Meters or 60 Days	NSO	NSO	NSO
Recreation	300 feet NSO	200 Meters or 60 Days	NSO for Sites	NSO for Sites	NSO for Sites
VRM Class I	Special Design	200 Meters or 60 Days	NSO	NSO	NSO
VRM Class II	Special Design	200 Meters or 60 Days	Special Design	Special Design	Special Design
VRM Class III-IV	Special Design	200 Meters or 60 Days	Special Design	Special Design	200 Meters or 60 Days
Cultural Resources	Inventory Required	200 Meters or 60 Days	NSO for Sites	NSO for Sites	NSO for Sites
Cultural Notice	Inventory Required	200 Meters or 60 Days	Inventory Required	Inventory Required	Inventory Required
Paleontology	Inventory Required	200 Meters or 60 Days	NSO for Site	NSO for Site	NSO for Site

* 200 Meters is approximately 656 feet

** NSO applies all year to one area of elk winter range in the Valley RA.

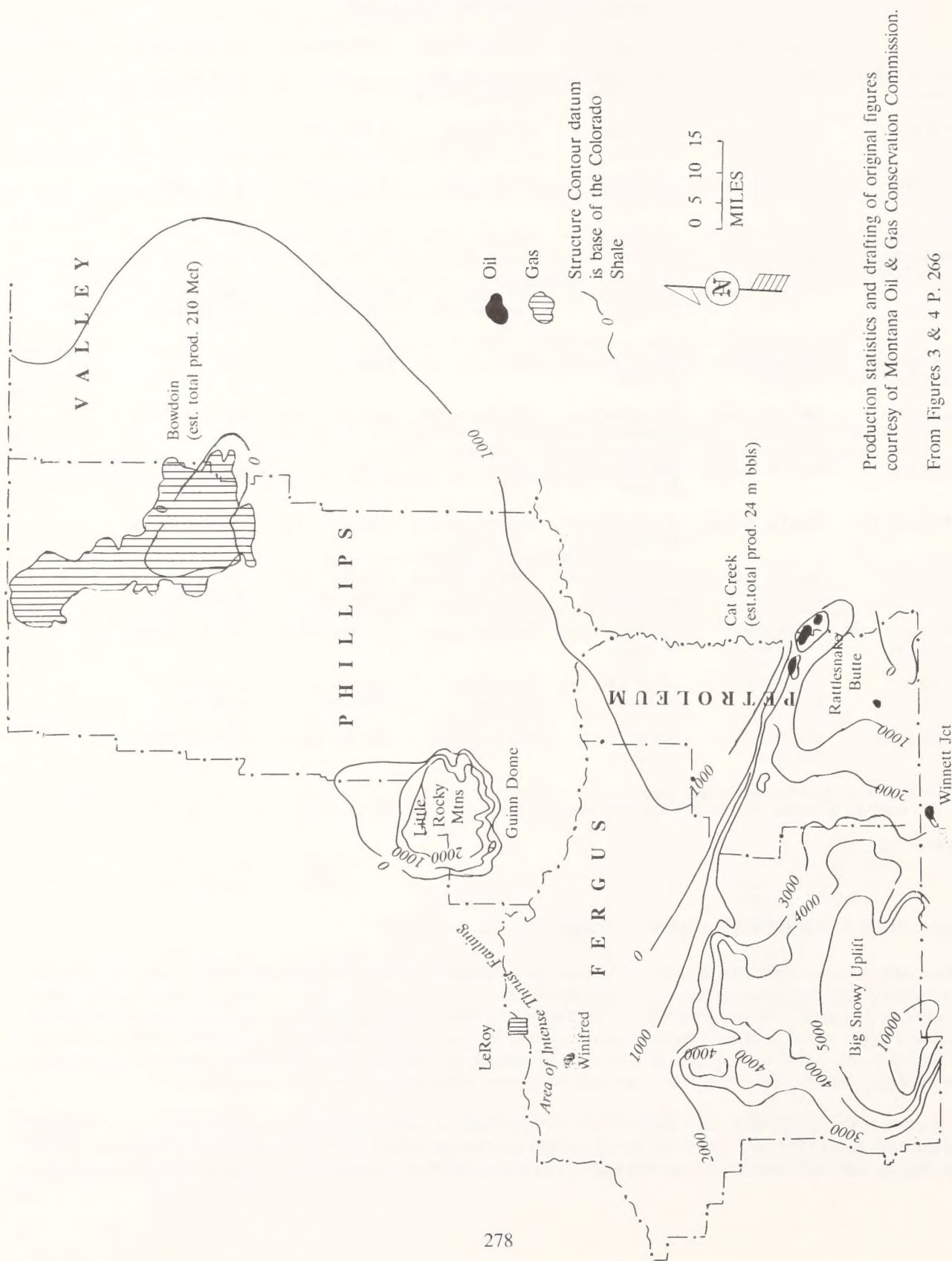
Source: BLM, 1990

REASONABLY FORESEEABLE DEVELOPMENT OF OIL AND GAS

This section presents an in-depth description of oil and gas leasing and development within the planning area. The purpose is to describe past, current and future oil and gas activity. There are two separate regions of the planning area which have on-going oil and gas activity (see Figure B.1). One region is primarily shallow gas, and the other, has both shallow gas and oil production. In terms of both quantity produced, and number of wells, shallow gas is predominantly the resource developed to date. The area also has some history of exploration by isolated wildcat wells drilled to evaluate deeper zones, but as of yet, none of these efforts have been successful in the planning area.

Production in the Phillips and Valley RAs is exclusively gas from the Bowdoin Dome Area where the average depth of production is about 1,500 feet. The Judith RA production has both gas from the Leroy Field in Fergus County and oil from two fields in eastern Petroleum County. The depth of the production ranges from 1,800 feet for gas to a maximum of 3,400

Figure B.1. Oil and Gas Fields in the Judith Valley Phillips Planning Area.



Production statistics and drafting of original figures
courtesy of Montana Oil & Gas Conservation Commission.
From Figures 3 & 4 P. 266

Source: Geologic Atlas of the Rocky Mountain Region
United States of America, Rocky Mountain
Association of Geologists Denver Colorado, 1972.

feet for oil.

Oil and Gas Leasing

The Mineral Leasing Act of 1920 (as amended), provides that all public lands be open to oil and gas leasing unless a specific land order has been issued to close the area. Through the land use planning process, the availability of the public land for leasing is analyzed, taking into consideration development potential and surface resources. Constraints on oil and gas operations are identified and placed in the leases as stipulations. Oil and Gas leases are then issued from the Montana State Office in Billings.

The issuance of a lease conveys to the lessee authorization to actively explore and/or develop the lease, in accordance with the attached stipulations and the standard terms outlined in the Federal Onshore Oil and Gas Leasing Reform Act (FOOGLRA). Restrictions on oil and gas activities in the planning area will take the form of timing and/or distance restrictions or No Surface Occupancy stipulations used at the discretion of the authorized officer to protect identified surface resources of special concern.

There will be three sources of these restrictions. The first are those contained in the lease (see Attachment B.1). The second are those contained in FOOGLRA and Notice to Lessees (NTL) specific to Montana. The third are those developed through site specific NEPA analysis of proposed activity and attached as Conditions of Approval to the permit issued by the authorized officer (see Attachment B.2).

In addition to restrictions related to the protection of surface resources the various stipulations could contain requirements related to protection of mineral resources on the lease. These may involve drainage protection of hydrocarbon zones, protection of aquifers from contamination or assumption of responsibility for any unplugged wells on the lease.

Stipulations will be attached to each lease before it is offered for sale by the field office which reviews the lease tract. The review will be conducted by consulting the direction given in this resource management plan. In addition, certain areas may be subject to stipulations based on Montana State policy guidance derived from NTLs. Every attempt will be made to place stipulations in the lease and to minimize use of Standard Conditions of Approval attached to the site specific permit. Within the RMP area there are about 34,413 acres of land managed by the Bureau of Reclamation associated with various projects in Phillips and Valley Counties. Oil and Gas lease stipulations for these lands will be attached after that agency reviews the lease. (see Attachment B.3)

All federal lessees or operators are required to follow procedures set forth by: Onshore Oil and Gas Orders (1 through 8), NTL's, the Federal Oil and Gas Royalty Management Act (as amended), the Federal Onshore Oil and Gas Leasing Reform Act and Title 43 Code of Federal Regulations, Part 3100.

In addition to federal leasing, the BLM assists the Bureau of Indian Affairs (BIA) through a Memorandum of Understanding in issuance of oil and gas leases on allotted and tribal Indian lands. The Fort Belknap Indian Reservation is adjacent to the planning area in the western portion of Phillips County. There are no currently active leases within the boundaries of this reservation. However, there are active leases on some scattered allotted Indian tracts of the Turtle Mountain Tribe which are administered by the Fort Belknap Agency of the BIA. The leasing process for Indian lands in the planning area involves the BLM State Office and the BIA Area Office both located in Billings Montana. BIA conducts the lease sales and issues the leases under the provisions of Title 25 CFR. BLM input to leasing is limited to an economic evaluation which recommends a minimum bid. All lease stipulations concerning surface resource protection are handled by the BIA. Title 25 CFR defers post leasing regulation to Title 43 CFR which applies to Indian lands as well as federal lands. The same procedures, which apply to federal leases, apply to oil and gas operators and lessees conducting exploration and development of Indian leases.

Oil and Gas Operations

Geophysical Exploration

Within the planning area Notices to conduct geophysical operations on BLM surface are received by the appropriate resource area office. Administration and surface protection are accomplished through close cooperation of the operator and the BLM. The Notice of Intent to Conduct Geophysical Exploration (Form 3150-4) is filed for all geophysical activities on public lands

administered by BLM. The Notice includes maps showing the location of the activity and access routes, anticipated surface disturbance and time frames for operations. Before the activity is allowed to proceed the Resource Area Office insures that the Operator is bonded and that any necessary mitigation measures are conveyed to the Operator via Form 3150-4a (Terms and Conditions for Notice of Intent). The Authorized Officer may require an onsite prework conference and conduct periodic compliance inspections during the activity. When Geophysical operations have been completed, the operator files a Notice of Completion (NOC), on Form 3150-5. The operator must include a field map showing actual line locations and access routes and certify that all terms and conditions of the approved Notice of Intent have been complied with. The BLM has 30 days from the filing of the NOC to notify the operator whether rehabilitation is satisfactory, or additional rehabilitation is necessary. Bonding liability will automatically terminate unless the AO notifies the operator of the need for additional rehabilitation within 90 days of the filing of the NOC.

Notices have a sporadic history in the planning area. In the early 1980's the Judith RA averaged four per year, Valley RA six per year and Phillips RA 10 per year. It is anticipated that activity will return to this level during the life of this plan. Geophysical exploration activity is an indirect method used to find areas where oil and gas might occur. In areas where more direct methods such as well log analysis, drill core analysis and subsurface structural mapping are available Geophysical exploration is not as heavily used. The areas where drilling has resulted in discovery of oil and gas in the past are not likely to be as active as wildcat areas where discoveries have not been made. The areas covered by this plan which could see increased geophysical activity are the eastern portions of Valley and Judith RAs and the foothills of the Little Snowy Mountains.

Drilling Permit Process

The federal Lessee or operating company selects a drill site based on spacing requirements, subsurface and surface geology, geophysics, topography, and economic considerations. Statewide spacing regulations are established by the Montana State Board of Oil and Gas Conservation and are generally as follows:

Gas Wells: One well per 640 acres (Governmental Section)

Oil Wells: 1. 0 - 6,000 feet deep: One well per 40 acres

2. 6,001 - 11,000 feet: one well per 160 acres

3. deeper than 11,000 feet: One well per 320 acres

Field areas have established well spacing units based on the Limits and physical properties of the producing reservoir rather than the surface legal subdivisions. Written field spacing orders are issued for each field. Exceptions to spacing requirements involving federal lands may be granted after joint State and BLM review.

Notice of Staking

Once the company makes the decision to drill, they must decide whether to submit a Notice of Staking (NOS) or supply directly for a permit to drill. The NOS is an outline of what the company intends to do, including a location map and sketched site plan. The NOS is used to review any conflicts with known critical resource values. The BLM utilizes information contained in the NOS and obtained from the onsite inspection to develop stipulations to be incorporated into the application for permit to drill. Upon receipt of the NOS, the BLM posts the document and pertinent information about the well in the respective Approving Offices for a minimum of 30 days prior to approval for review and comment by the public.

Application for Permit to Drill (APD)

The operator may or may not choose to submit an NOS; in either case, an Application for Permit to Drill (APD) must be submitted. An APD consists of two main parts: a 12 point surface plan which describes any surface disturbances and is reviewed by resource specialists for adequacy with regard to lease stipulations designed to mitigate impacts to identified resource conflicts with the specific proposal, and an 8 point subsurface plan which details the drilling program and is reviewed by the staff petroleum engineer and geologist. For the ADP option the onsite inspection is used to assess possible impacts and develop stipulations to minimize these impacts. If the NOS option is not utilized the 30 day posting period begins with the filing of the APD.

Drilling Phase

Once the APD is approved, the operator may begin construction activities in accordance with stipulations and conditions. When a site is chosen that necessitates the construction of an access road the length will vary, but usually the shortest feasible route is selected to reduce the haul distance and construction costs. Environmental factors or a landowner's wishes may dictate a longer route in some cases. The majority of drilling activity within the planning area is done with the use of truck mounted drilling rigs and use of existing trails or off road travel is the most common method of access to drilling locations.

During this first phase the operator moves construction equipment over existing maintained roads to the point where the access road begins. The equipment most commonly used includes bull dozers, graders and occasionally scrapers. Depending on the terrain, existing roads and trails may require improvement in places and occasionally culverts and cattle guards are installed.

The second phase is the construction of the drilling pad or platform. Because of the topography, and because most wells are only 1,500 to 2,200 feet deep they can be drilled with smaller drill rigs which limit surface disturbance to 1.5 to 2.5 acre locations. The average time to construct a location and drill a well is seven days. Again, in much of the planning area the relatively flat, grassland topography requires little work to prepare a drill pad. In some cases no disturbance other than mud pits and a level area on which to spud the well is needed. If surface disturbance is necessary, soil material suitable for plant growth is removed and stockpiled in a separate area, to be used later for rehabilitation and reseeding when the location is reclaimed and abandoned. Drilling sites on ridge tops and hillsides are constructed by cutting and filling portions of the location after the topsoil has been removed. the majority of the excess cut material is stockpiled in an area that will allow it to be easily recovered for rehabilitation. In the permit review process every attempt is made to insure that cut and fill areas of the pad balance so that stockpile areas, other than topsoil, are not needed.

The amount of level surface required for safely assembling and operating a drilling rig varies with the type of rig, but is usually no larger than 200 feet by 250 feet. Deeper wells will require larger pads because of the rig size and larger capacity of the mud (reserve) pit. When construction of a drilling location requires cut and fill, the foundation of the drilling derrick is usually placed on a cut surface ensuring that it rests on solid ground, thereby preventing it from leaning or toppling due to settling of uncompacted soil.

In addition to the drilling platform, a reserve pit is constructed. The reserve pit is used to contain the drilling fluids and drill hole cuttings. It is usually square or oblong, but is sometimes constructed in other shapes to accommodate topography. Generally, the reserve pit is 6 to 12 feet deep, but may be deeper to compensate for smaller length or width dimensions. In some instances steel mud tanks are utilized which reduces the need for large reserve pits. For air drilling, smaller pits (blooie pits) are used; usually less than 10 by 10 feet and approximately 6 to 10 feet in depth.

Depending on how the drill site is located relative to a natural drainage, it may be necessary to construct water bars or diversion ditches to control surface runoff and erosion. The area disturbed for construction and the potential for successful revegetation depends largely on topography, soil type, climate and the degree of disturbance.

Usually drilling activities begin as soon as possible after the location and access road have been constructed. The drilling rig and associated equipment are moved to the location and erected over the hole with a conductor pipe cemented in place.

Water for drilling is hauled or piped to the rig storage tanks or reserve pit from rivers, wells or privately owned reservoirs. Occasionally, water supply wells are drilled on or close to the drill site. Bentonite, a clay mineral, which is commercially produced, is mixed with the water to form the main constituent of the drilling mud which has the texture of a gel. A wide variety of other chemical materials may be added to enhance the mud properties. Drilling mud performs several important functions; it cools and lubricates the bit, reduces the drag of the drill pipe on the sides of the bore hole, seals off any porous zones, aids in preventing an uncontrolled release of formation fluids, and carries the cuttings to the surface. High pressure air mist is sometimes used in place of mud. The use of mud or air is largely dependent upon the target formation, drilling depth and type of completion desired. A combination of the two mediums is often used in the planning area where mud is used to drill the upper part of the hole and the operation changed to air before drilling into the target zone. This offers all of the advantages of pressure control and cuttings recovery but reduces the risk of formation damage to the porosity of the hydrocarbon bearing zone.

Drilling mud or air is circulated through the drill pipe to the bottom of the hole, through the bit and up the annular space between the well bore and drill pipe. At the surface the mud and rock cuttings are returned to the reserve pit where gravity

separates the two or they are mechanically separated through a screen. The mud is recycled and returned to the system for further use. When drilling with air the cuttings are blown into the bloopie pit.

The actual commencement of the drilling is referred to as "spudding in". Initially, the drilling usually proceeds rapidly due to the unconsolidated nature of shallow formations.

Drilling is accomplished by rotating special bits bearing a controlled portion of the drill string weight. The rig structure and associated hoisting equipment bear the remainder of the drill string weight. The weight on the bit is controlled to maintain as nearly vertical a hole as possible or to deviate from vertical when desired and to prevent rapid wearing of the drill bit.

The combination of rotary motion and weight on the bit causes rock to be chipped away at the bottom of the hole. These chips are then transported to the surface where they are disposed of into the reserve pit. Samples of the cuttings are collected at ten foot intervals to keep track of the lithology and hydrocarbon content of the rocks being penetrated.

The rotary motion is created by a square or hexagonal rod, called a kelly, which fits through a square or hexagonal hole in a large turntable, called a rotary table. The rotary table sits on the drilling rig floor and as the hole is deepened the kelly descends. When the kelly has gone as deep as it can, it is raised and another 25 to 30 foot piece of drill pipe is attached to the drill string in the hole. The entire drill string is then lowered, the kelly is attached to the top of it, and drilling recommences. By adding more and more drill pipe the hole is steadily deepened 25 to 30 feet at a time.

Eventually, the bit becomes worn and must be replaced. To change bits, the entire string of drill pipe must be pulled from the hole. Once the bit is replaced the drill string is reassembled, lowered into the hole and drilling is started again.

Drilling operations are continuous, 24 hours a day, 7 days a week. The crews usually work three 8-hour shifts or two 12-hour shifts a day. Most wells in the planning area require 3 to 4 days to reach total depth. At periodic intervals, BLM personnel, usually petroleum engineering technicians (PET's), will conduct inspections of the drilling rig and operations to ensure compliance with the approved plans in the APD. If at any time the operator wishes to change the approved plans in the APD, verbal approval may be obtained, but must be followed up in writing.

Producing Phase

Upon completion of drilling, the well is tested to determine its capability to produce hydrocarbons (oil and gas). If oil or gas is found in commercial quantities the well is completed as a producer. Typically, oil producing wells in the planning area require a pump jack, stock tanks, heat treating facilities and usually a water disposal pit. Gas wells in this region are mostly "sweet gas" wells, that is, they contain no hydrogen sulfide gas. Sweet gas production requires a meter house and a gathering line or marketing line to transport the gas. In some cases a compressor station is required to compress the gas to a pressure necessary for entry into a pipeline.

If liquid hydrocarbons (condensates) are produced with the gas a separator and storage facility are necessary. Gas wells which produce water require a small (10 by 10 foot) water disposal pit. Sour gas wells (those which produce hydrogen sulfide gas) require special wellhead equipment due to the corrosive nature of the hydrogen sulfide. The sour gas may be treated to remove any hydrogen sulfide prior to entry into a sales pipeline, this is a complicated extraction process which requires installation of a gas treatment plant facility. There are currently no such facilities within the planning area.

Installation of production facilities generally requires little additional surface disturbance beyond that necessary for drilling. However, additional disturbance does result from pipeline and gathering line installation and upgrading of access roads to all weather standards. Gas meter houses are usually 10 by 10 foot skid mounted, steel sheds. Pump jacks in this area are usually 8-10 foot in height, and require a slightly larger surface area than a gas house. The gas house and pump jack are usually situated over the well head on the same area where the drill rig was set up. Water disposal pits needed for the evaporation of water produced in association with hydrocarbons generally fit within the boundaries of the drilling pad. After the production facilities are installed the remaining drilling disturbances are reclaimed.

During the production phase, BLM monitors and approves field activities needed for well and field operation and regulation. Many operations, e.g. completion in a different zone, deepening, plugging, etc., require prior approval. Others such as acidizing and fracturing do not require prior approval, but a subsequent report of operations describing the operation in detail must be filed.

Plugging and Abandonment

Wells that are completed as dry holes, or depleted producing wells, are plugged according to a plan designed specifically for the down hole conditions of each well. Cement plugs are placed to isolate all porous formations, across the base (shoe) of the surface casing and at the surface. Drilling mud is used as a spacer between plugs. This is done to prevent communication between fluid bearing zones.

Plugging is accomplished by placing cement through the open ended drill pipe, or tubing, at the appropriate depths or as necessary to ensure at least one plug each 2500 feet. A dry hole marker is often placed at the surface to identify the well location. If the surface owner prefers, the casing is cut off at least 3 feet below ground level, and a plate is welded over the top. An abandoned well may be converted to a water well if the surface agency or owner wishes.

Oil and Gas Historical Background

The planning area has a long history of oil and gas exploration and development. Production throughout the planning area is from shallow, low pressure reservoirs of Cretaceous and older age. The area's oil production is from two fields in Petroleum County whereas gas production occurs throughout the planning area. Table B.2 lists, by county, the producing oil and gas fields within the planning area. Table B.3 shows the active wells in the planning area.

**TABLE B.2
OIL AND GAS FIELDS BY COUNTY**

<u>County</u>	<u>Field</u>	<u>Production</u>	<u>Discovery Date</u>
Petroleum	Cat Creek	Oil	1920
Petroleum	Rattlesnake Butte	Oil	1984
Fergus	Leroy	Gas	1968
Phillips/Valley	Swanson Creek	Gas	1975
Valley	Vandalia	Gas	1932
Phillips	Bowdoin & Area	Gas	1913
Phillips	Whitewater	Gas	1975
Phillips	Loring Unit	Gas	1968
Phillips	Loring, East	Gas	1972
Phillips	Loring, West	Gas	1972

Source: Montana Oil and Gas Annual Review

**TABLE B.3
WELL DENSITY AND PROJECTIONS BY UNIT OR FIELD**

<u>Unit/Fields</u>	<u>Producing and Gas Shut-in Wells</u>	<u>Projected Wells Based On Spacing</u>	<u>Maximum Additional Wells Based on Spacing</u>	<u>10 year Industry Projection</u>
Loring*	111	344	228	196 (1)
E. Loring*	93	316	222	56 (3)
W. Loring*	2	8	6	3 (3)
Whitewater*	127	436	298	239 (1)
E. Whitewater*	25	60	39	15 (3)
Bowdoin**	343	756	356	0-10 (2)
Swanson Creek**	89	180	113	53 (3)
Ashfield**	79	114	83	95 (1)
Total	869	2,214	1,345	662

* 437 Wells connected into Kansas-Nebraska Pipeline System

** 432 Wells connected into Williston Basin Pipeline System

Source: (1) Darrel Kempf, FMP Operating Company

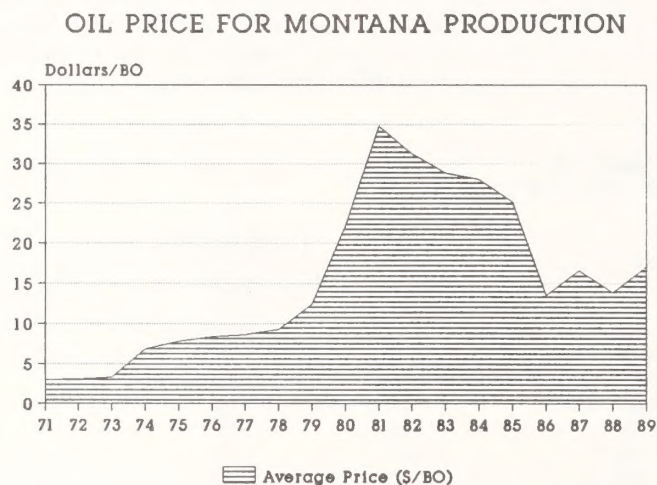
(2) Don Brutlag, WBI

(3) Mathematical calculation based on 60% of Producing and Gas Shut-in

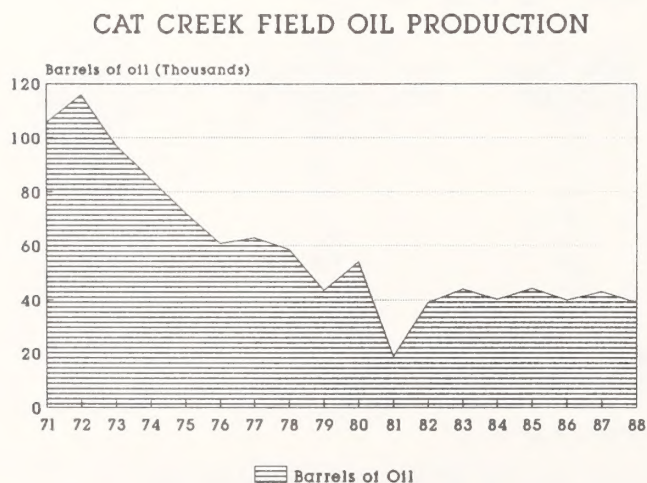
Cat Creek field is the oldest producing field in the State of Montana. It straddles the Musselshell River which is the dividing line between Garfield and Petroleum Counties. The East and West Domes of the field are within Petroleum County, which is within this planning area. The field discovery was made in 1920 and this portion of the field has produced a cumulative production of 21,270,000 barrels of oil from Cat Creek Formation sands of Cretaceous age.

The oil production at the Cat Creek Field is currently in a secondary recovery water flood status. This operation began in 1959. Average daily oil production from the field in 1967, when the current operator took over the field, was between 90 and 120 barrels. During 1989 the average daily production was between 15 and 19 barrels. As this points out the recovery of oil from this area is declining and will probably reach an economic limit during the life of this plan. When this happens the wells in the area will gradually be plugged and the well sites and facility locations reclaimed. Figure B.2 shows the production and oil price histories for Cat Creek Field.

FIGURE B-2



Source: Montana Historic Energy Statistics 1989



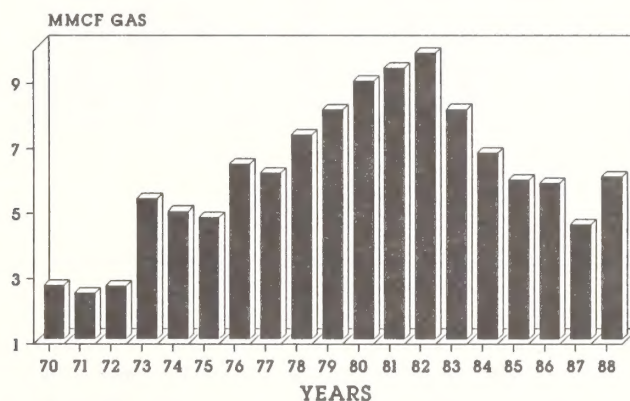
Source: Montana Oil & Gas Conservation Commission
Annual Summary Statistics.

The only other producing oil field in the planning area is the Rattlesnake Butte field which was discovered in 1984 and has produced 377,000 barrels of oil from the deeper and older Amsden Formation of Pennsylvanian age. This field is located southwest of the Cat Creek Field. The recent Amsden production has spurred new interest in deeper drilling to explore the oil potential of the Amsden in the Cat Creek Field.

The Bowdoin Area is currently the largest gas producing region in the planning area. The area covers nearly 530,000 acres of land, mostly located in Phillips County. The large dome structure produces gas from Upper Cretaceous Colorado Group Sand Members locally referred to as the Bowdoin and Phillips sands. The average depth of the producing interval is 1,500 feet. The southern most portion of the area has been developed through federally approved unit agreements. The Ashfield and Bowdoin Units contain the majority of the producing wells in the area. The central portion of the area is made up of Whitewater Unit, East Whitewater Field and Swanson Creek Field. The Loring Unit and East Loring Field make up the northern portion of the area. Figure B.3 shows the production history of the Bowdoin Area. Gas production has been constant from the existing wells in the area but drilling activity is related to market conditions, which include demand and price.

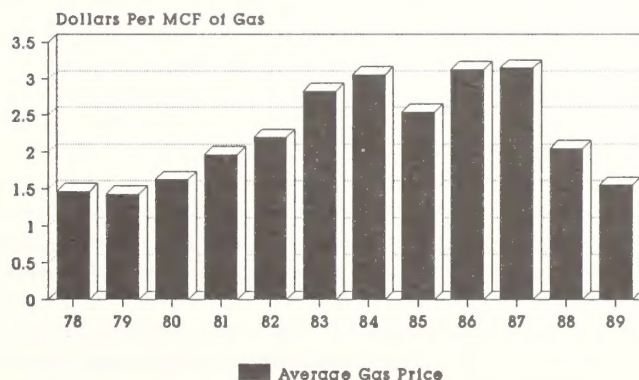
FIGURE - B.3

BOWDOIN DOME GAS PRODUCTION



Source: Montana Oil & Gas Conservation Commission
Annual Summary Statistics.

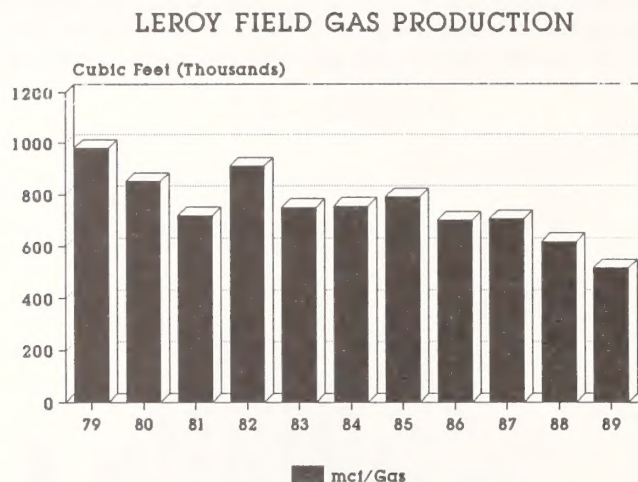
GAS PRICE FOR MONTANA PRODUCTION



Source: Montana Historic Energy Statistics 1989

Leroy Field, located in the northern Fergus County is the only other gas producing field in the planning area. The Upper Cretaceous Eagle Sandstone is the productive zone in the field. Only twenty five percent of the producing wells in Leroy field are located in the planning area. The majority of the production is north of the Upper Missouri Wild and Scenic River and all of the gas produced is sold to pipelines which supply the northern network. Figure B.4 shows the production history of the Leroy Field.

FIGURE - B.4



Source: Montana Oil & Gas Conservation Commission
Annual Summary Statistics.

In addition to these existing producing fields the planning area contains two areas which are considered high potential for exploration. The first is located in south Valley County. This area is underlain by an accumulation of sediments which produce both oil and gas in prolific amounts in eastern Montana and western North Dakota. The area is called the Williston Basin and the portion located in the planning area has been drilled at various times in the past without success. However, the continued leasing interest and geophysical work indicate that this area will continue to be of interest to the industry for future exploration. Another area is the foothills surrounding the Big and Little Snowy Mountains. It is likely that both of these areas will be subjected to wildcat drilling of at least one well over the life of the plan.

Present Activity

Presently there are two producing oil fields in the planning area. Both of the oil fields are located in Petroleum County. Portions of Cat Creek field have been in a secondary recovery water flood status since 1959 and the production is declining at a rate which will result in the field being abandoned sometime in the near future. This field produced 51,405 barrels of oil in 1988 from the Cat Creek Formation. This is one of the oldest producing oil fields in the state. There are two producing federal leases which account for 90% of the oil produced in the field. It is not anticipated that any new development drilling will be initiated over the life of this plan within the Cat Creek field.

Rattlesnake Butte field is the only other oil producing field in the planning area. It produced 51,042 barrels of oil and 5,289 MCF of gas from 6 active wells in 1988. None of the production is from federal land. The oil is produced from Amsden formation which is a deeper zone than the Cat Creek sands which produce gas, rather than oil, in this area.

There are two currently active gas producing areas in the planning area. The most prolific of these is the Bowdoin Area. In 1989 this area was one of the few areas in the state where there was a substantial increase in drilling activity. This was primarily due to a spacing change, in part of the area, which increased the number of wells to 4 per section instead of 2 which

had been the field spacing since 1981. There are currently 829 producing gas wells and 40 shut in gas wells in the area. The spacing change will make it possible to add an additional 1,345 wells to this number if all of the available tracts are drilled successfully. Approximately 70% of the lands involved in this area are federal with the remaining lands being either private or state.

The other producing gas field in the planning area is the portion of Leroy field located in northern Fergus County. This portion of the field has a total of 8 producing gas wells, accounting for about 25% of the gas produced in the field. 1988 production from the field was 618,620 MCF of gas. There are no current planned expansions of spacing in the field and the field is considered fully developed with the current well pattern. Approximately 60% of the southern portion of the field which is open to development is federally owned.

Reasonably Foreseeable Development Activity

Based on the preceding analysis of past and current oil and gas activities and trends, the following is a description of the reasonably foreseeable oil and gas exploration and development activity anticipated in the planning area.

Oil Production

Most of the oil exploration and development wells in the planning area are limited to the Judith and Valley RAs. The producing fields are in declining stages of development and as the average daily production declines to a level where it is no longer possible to produce oil and gas at a profit, the number of well pluggings is expected to increase. In the Cat Creek field some of these existing wells are likely to be re-entered and deepened with expectations of encountering hydrocarbons in deeper sedimentary horizons. Exploration of these deeper horizons has been successful on the same anticlinal structure east of the field in Garfield County in 1989. The extent to which the deeper zones will add to new production in this area is unknown.

In addition to potential for deeper exploration in the area of existing oil production, there is the likelihood of exploratory drilling in at least two areas of this plan. One is southern Valley County and the other is the Little Snowy Mountains in Fergus County. Past exploration in southern Valley County has involved drilling on exploratory units which range in size from 6 to 25 thousand acres in size.

Unitization involves the joining together of lands that may be logically explored as a single area. It allows a company to explore and develop a prospect under a cost-sharing arrangement with other mineral owners and/or lessees. To receive the benefits of unitization, an operator must drill at least one well to the target formation within 6 months of approval. Generally, there is no requirement to drill more than one well. If the initial well is dry, the operator must commence a second well within six months or the unit will automatically terminate.

If commercial production is obtained, interest owners participate in production on the basis of their percentages of ownership of the participating area. The prospect must be defined within a five year period (which can be extended as long as the operator continues to diligently drill new wells outside of the proven area, with each new well commencing within 90 days of the completion of the previous well). If no new wells are drilled, the unit contracts to the configuration of the participating area, and all other lands are eliminated from the unit. Separate participating areas are established for each producing horizon.

A unit well will extend the term of all leases committed within the participating area. A unit will terminate when production ceases from all producing areas. When a unit terminates, federal leases committed to the unit receive a two-year extension from the date of termination.

It is anticipated that at least one of these such units will be formed and drilled within the life of this plan. As previously described, the State of Montana has established an oil field spacing pattern of one well per 40 acres for oil wells shallower than 6,000 feet in depth. However, in this area some wells may be deeper. The spacing for oil wells between 6 and 11 thousand feet deep is one well per 80 acres. This means that there could be as many as 8 wells in a fully developed section of land. A unit containing 10 sections of land when initially approved could end up with 3 to 5 of those sections being fully developed. This would include a maximum of 40 well sites. These locations when fully equipped with pump jacks, storage tanks, flow lines, access roads and power lines would involve a total of 120 acres of disturbance. It would take 2 to 8 years to drill the wells. The field would produce for 20 to 30 years. If secondary recovery techniques were employed, additional

wells might be drilled for water injection purposes, this would extend the life of the field and lead to additional surface disturbance.

The Williston Basin in this part of the planning area contains structural deformation features in the form of anticlinal and synclinal folds which act as structural traps to the migration of hydrocarbons. It is these features that are of interest to the oil and gas industry for possible exploration and development. Crystalline basement rock (non-sedimentary rock very unlikely to contain hydrocarbons) underlies the sedimentary rock at a relatively shallow depth (7,000 - 9,000 feet) in the area. This means that deeper drilling which involves longer drilling time and more extensive surface disturbance than the anticipated impacts is not likely to occur.

In the Judith RA oil exploration in the Little Snowy Mountain uplift could also involve unitization. However, this has not been the case in the past. Single wildcat well drilling is a more likely scenario. The exploration targets in this area are primarily structural traps or sedimentary features which are less extensive than those in other portions of the planning area. The closest oil production to this area is from a 3 well field which produces from the Tyler Formation. The field size is a total of 240 acres. Cumulative production since discovery in 1973 is 867 thousand barrels. The Winnet Junction field is one of several such fields adjacent to the planning area producing from the Tyler channel sands. It is likely that exploration for oil production of this type will occur at some time over the life of this plan. If a discovery is made it would involve 3 to 4 well locations with a centrally located tank battery. This would disturb a total of about 10 acres of land. Surface disturbance for production facilities will be less than that necessary for drilling. The life of a field is anticipated to be between 20 and 30 years with secondary recovery in the latter stages of production. Drilling of an exploratory well in this area would take from 3 to 5 weeks. Subsequent development wells would take 10 to 20 days to drill. Testing, logging and completion would involve an additional 3 to 5 days.

Although no large oil field discoveries are expected within the planning area, continued exploration is anticipated. The majority of the planning area is rated moderate to high for oil and gas development potential and there are large areas of public land which have not been tested in the past. The rate of exploration should be in direct response to the price of oil. With domestic consumption rising and the increasing dependency on foreign oil, we can expect oil prices to rise to a point where further exploration activity will occur at some time over the next decade.

All of the anticipated activity discussed is based on traditional drilling and completion techniques using either rotary drilling with fluid base mud or air mist to drill a vertical hole from the ground surface to the prospective hydrocarbon zone. Horizontal drilling and completion technology which is currently being used in adjacent areas could be used in this area in the future. The degree to which this technology might increase production potential in the non-producing areas of the district is unknown. In the Williston Basin this technology has enhanced production in some reservoirs and made it possible to produce oil from reservoirs which can not be produced using traditional methods. There are formations which may have potential for future application of this technology within the planning area.

Gas Production

The State of Montana sets spacing unit sizes for all lands producing gas. Although the federal government is not bound by these spacing unit sizes, they are generally recognized. Until recently, most gas fields in the planning region were spaced to allow one well per section. Within the past several years many operators have requested a decrease in the size of the spacing unit, or for permission to drill an additional well per spacing unit. These requests resulted from reservoir data indicating that one well per 640 acres is not effectively draining the gas from the producing formations in the fields; 320 acre spacing or 2 wells per section is the most common spacing for gas producing fields in the planning area.

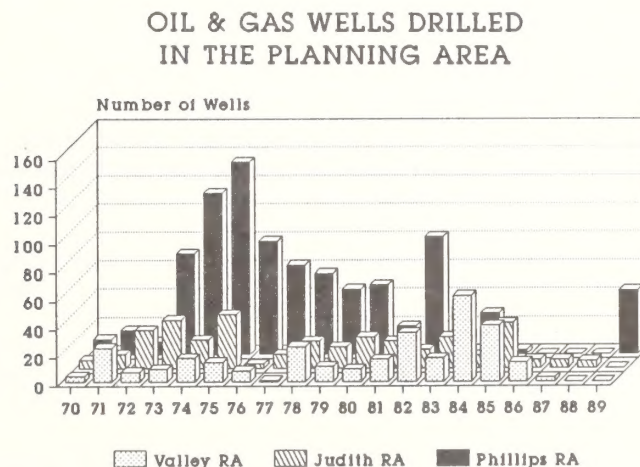
Much of the planning area has potential for additional gas production. A field consisting of 3,200 acres could be expected to have 10 completed wells to be fully developed. A newly discovered field would have to be at least this extensive to justify the cost of installing a field collection system and hooking this up to a commercial transportation pipeline. Assuming diligent development, these wells would be drilled over a 1 to 5 year period and the field should produce for 20 to 25 years. Larger fields will of course require a longer time to develop, thus extending the life of the field. Because 80% to 95% of the original gas in place can be recovered from a typical gas reservoir, no secondary recovery techniques are used.

Future exploration will most probably occur, as in the past, along the margins of existing fields as stepout wells. These exploratory wells will better delineate the boundaries of existing fields and will probably result in the discovery of several new fields over the next decade. These new discoveries should be comparable in depth, size, reserves and areal extent to existing

fields in the planning area. No new large field discoveries, such as the Bowdoin Dome, would be anticipated within the life of the plan.

Given a sudden increase in the demand for natural gas, or a sharp increase in price, a large exploration or development program throughout the planning area could develop very rapidly. This is primarily due to the relatively shallow existing reservoirs and the accessibility of land in the area. However, one of the major problems with developing and exploring for natural gas in Montana is the inability to transport produced gas to eastern and western markets. The Montana Power Company, Williston Basin Pipeline and Kansas Nebraska Pipeline Companies are the purchasers in the planning area (see Table B.4). They expand their pipeline systems at a rate that allows their current quotas to be maintained. As existing wells deplete new wells are added to the pipeline but the supply remains relatively unchanged. Demand for gas has not increased in this area for several years and this has kept the purchase price for gas at a stable level. Figure B.5 shows the drilling activity in the planning area by Resource Area. The Phillips Resource Area drilling statistics directly reflect gas well drilling, because this is the only hydrocarbon resource produced in the County. It shows a pattern of stability followed by a rapid increase in drilling, for a short period of time, and then a return to stability. It is likely that at least one such cycle will take place during the life of this plan.

FIGURE B.5



Source: Montana Oil & Gas Conservation Commission
Annual Summary Statistics.

TABLE B.4
PIPELINE DENSITY AND PROJECTION BY SYSTEM OPERATOR

System Operator	Total Miles	Miles on Federal Surface	Total Acreage	Federal Acreage	Average Acres/ Well or GSI	Projected Disturbed Acreage For Each Additional Well
Kansas-Nebraska	458	203	2,776	1,230	6.1	2.3 (2)
Williston Basin	308	34	1,867	206	4.3	1.2 (3)
Totals	766	237	4,643	1,436	5.2	5.2

(1) Includes 11.2 miles of Lessee owned 3" polyethylene pipeline

(2) Estimate Average 50' wide x 2,000' in length to tie-in

(3) Estimate Average 50' wide x 1,000' in length to tie-in

Source: Darrel Kemp, FMP Operating Company
Don Brutlag, WBI

Summary of Future Oil and Gas Drilling Activity

Based on the history of past drilling and foreseeable development potential in the planning area, activity over the next decade will include the drilling of at least 50 federal wells a year. The majority of this drilling will take place as additional wells are added to the existing gas producing fields. Some exploration for new oil fields will also be involved but it is not anticipated that new discoveries will be made. In addition to the drilling of gas field development wells and some wildcat oil wells, there will be activity from the plugging of abandoned wells. It is anticipated that producing wells will be depleted and subsequently plugged and abandoned during life of this plan in both the gas producing and oil producing areas. It is not possible to predict the exact number of the wells which will be abandoned at this time. There are numerous factors which determine when and how many wells could be abandoned. Recent economic conditions within the oil industry resulted in a decline in the number of active exploratory wells and the number of developmental wells. A turn around in the oil industry or an increase in the price of oil purchased from abroad, would spur an increase in the demand for domestic production. This would result in an increase in the number of wells drilled and could lead to renewed efforts to recover additional reserves from existing fields in the planning area. On the contrary side, low oil prices and depressed economic conditions would result in an increase in the number of abandonments and a decrease in domestic exploration and development.

STIPULATIONS - ALTERNATIVE A (see - Form MT-3109-1)

STIPULATIONS - ALTERNATIVE B

All BLM-administered land would be open to oil and gas leasing without restriction beyond those in the Federal Onshore Oil and Gas Leasing Reform Act of 1987, existing Notice to Lessees, Onshore Orders and regulations.

OIL AND GAS LEASE STIPULATIONS

ESTHETICS—To maintain esthetic values, all surface-disturbing activities, semipermanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives of the SMA.

EROSION CONTROL—Surface disturbing activities may be prohibited during muddy and/or wet soil periods. This limitation does not apply to operation and maintenance of producing wells using authorized roads.

CONTROLLED OR LIMITED SURFACE USE STIPULATION—This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the Bureau of Land Management with concurrence of the SMA. Distances and/or time periods may be made less restrictive depending on the actual onground conditions. The prospective lessee should contact the SMA for more specific locations and information regarding the restrictive nature of this stipulation.

The lessee/operator is given notice that the lands within this lease may include special areas and that such areas may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled, or **if absolutely necessary**, excluded. Use or occupancy will be restricted only when the Bureau of Land Management and/or the surface management agency demonstrates the restriction necessary for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the SMA has been advised of specific proposed surface use or occupancy on the leased lands, and on request of the lessee/operator, the Agency will furnish further data on any special areas which may include:

100 feet from the edge of the rights-of-way from highways, designated county roads and appropriate federally-owned or controlled roads and recreation trails.

500 feet, or when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams; 1,000 feet, or when necessary, within the 100-year flood plain from larger perennial streams, rivers, and domestic water supplies.

500 feet from grouse strutting grounds. Special care to avoid nesting areas associated with strutting grounds will be necessary during the period from March 1 to June 30. One-fourth mile from identified essential habitat of state and federal sensitive species. Crucial wildlife winter ranges during the period from December 1 to May 15, and in elk calving areas, during the period from May 1 to June 30.

300 feet from occupied buildings, developed recreational areas, undeveloped recreational areas receiving concentrated public use and sites eligible for or designated as National Register sites.

Seasonal road closures, roads for special uses, specified roads during heavy traffic periods and on areas having restrictive off-road vehicle designations.

On slopes over 30 percent, or 20 percent on extremely erodable or slumping soils.

(Date)

(Signature)

NOTICE

CULTURAL AND PALEONTOLOGICAL RESOURCES—The Federal Surface Management Agency (SMA) is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the SMA, shall:

1. Contact the appropriate SMA to determine if a site specific cultural resource inventory is required. If an inventory is required, then;
2. Engage the services of a cultural resource specialist acceptable to the SMA to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the area of proposed disturbance to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface disturbing operation is submitted.
3. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as testing salvage and recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited.

The lessee or operator shall immediately bring to the attention of the SMA any cultural or paleontological resources discovered as a result of approved operations under this lease, and not disturb such discoveries until directed to proceed by the SMA.

ENDANGERED OR THREATENED SPECIES—The SMA is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species, listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the authorized officer of the SMA that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resources specialist approved by the SMA. An acceptable report must be provided to the SMA identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

STIPULATIONS - ALTERNATIVES C and D (Alternative D would include a NSO restriction for wildlife protection rather than a seasonal or distance stipulation)

CONTROLLED SURFACE USE

Resource: Soils

Stipulation: Prior to surface disturbance on slopes over 30 percent, an engineering/reclamation plan must be approved by the authorized officer. Such plan must demonstrate how the following will be accomplished:

- Site productivity will be restored.
- Surface runoff will be adequately controlled.
- Off-site areas will be protected from accelerated erosion, such as rilling, gullying, piping, and mass wasting.
- Water quality and quantity will be in conformance with state and federal water quality laws.
- Surface-disturbing activities will not be conducted during extended wet periods.
- Construction will not be allowed when soils are frozen.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, or having excessive reclamation problems.

Exception: None.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area do not include slopes over 30 percent.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the entire leasehold does not include slopes over 30 percent.

NO SURFACE OCCUPANCY

Resource: Riparian/Hydrology

Stipulation: Surface occupancy and use is prohibited within riparian areas, 100-year flood plains of major rivers, and on water bodies and streams.

Objective: To protect the unique biological and hydrological features associated with riparian areas, 100-year flood plains of major rivers, and water bodies and streams.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area do not include riparian areas, flood plains, or water bodies.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the entire leasehold does not include riparian areas, flood plains, or water bodies.

NO SURFACE OCCUPANCY

Resource: Land Use Authorizations

Stipulation: Surface occupancy and use is prohibited on FLPMA leases, permits, easements, and Rights-of-Way (ROWs).

Objective: To protect uses under existing FLPMA leases, permits, easements, and ROWs.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this stipulation may be modified by the authorized officer if the land use authorization boundaries are modified.

Waiver: This stipulation may be waived by the authorized officer if all land use authorizations within the leasehold have been terminated, canceled, or relinquished.

NO SURFACE OCCUPANCY

Resource: Recreation

Stipulation: Surface occupancy and use is prohibited within developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Objective: To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified by the authorized officer if the recreation area boundaries are changed.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer contains developed recreation areas or undeveloped recreation areas receiving concentrated public use.

NO SURFACE OCCUPANCY

Resource: Visual Resource Management (VRM) Class I

Stipulation: Surface occupancy and use is prohibited in VRM Class I areas (i.e., Wilderness, Wild and Scenic Rivers, etc.).

Objective: To preserve the existing character of the landscape.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified by the authorized officer if the boundaries of the VRM Class I area are changed.

Waiver: This stipulation may be waived by the authorized officer if all VRM Class I areas within the leasehold are reduced to a lower VRM class. Areas reduced to a lower VRM class will be subject to the Controlled Surface Use stipulation for visual resources.

CONTROLLED SURFACE USE

Resource: Visual Resource Management (VRM) Classes II, III, and IV

Stipulation: All surface-disturbing activities, semipermanent and permanent facilities in VRM Class II, III, and IV areas may require special design including location, painting and camouflage to blend with the natural surroundings and meet the visual quality objectives for the area.

Objective: To control the visual impacts of activities and facilities within acceptable levels.

Exception: None.

Modification: None.

Waiver: None.

NO SURFACE OCCUPANCY

Resource: Designated black-footed ferret reintroduction areas that have been determined to be essential for black-footed ferret recovery.

Stipulation: Surface occupancy and use is prohibited within designated black-footed ferret reintroduction areas.

Objective: To protect designated black-footed ferret reintroduction areas.

Exception: An exception may be granted by the authorized officer if the operator submits a plan demonstrating that the proposed action will not affect the black-footed ferret or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the authorized officer in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with the FWS, determines that portions of the area are no longer essential for black-footed ferret reintroduction.

Waiver: This stipulation may be waived if the authorized officer, in consultation with the FWS, determines that the entire leasehold no longer contains habitat essential for black-footed ferret reintroduction, or if the black-footed ferret is declared recovered and is no longer protected under the Endangered Species Act (ESA).

Note: If this stipulation is to be modified or waived, the authorized officer, in consultation with the FWS, will also determine if the Controlled Surface Use stipulation for potential black-footed ferret habitat should be applied in its place.

CONTROLLED SURFACE USE

Resource: Potential black-footed ferret habitat (prairie dog colonies and complexes 80 acres or more in size that are not designated as black-footed ferret reintroduction sites).

Stipulation: Prior to surface disturbance, prairie dog colonies and complexes 80 acres or more in size will be examined to determine the absence or presence of black-footed ferrets. The findings of this examination may result in some restrictions to the operator's plans or may even preclude use and occupancy that would be in violation of the Endangered Species Act (ESA) of 1973.

The lessee or operator may, at their own option, conduct an examination on the leased lands to determine if black-footed ferrets are present, or if the proposed activity would have an adverse effect, or if the area can be cleared. This examination must be done by or under the supervision of a qualified resource specialist approved by the Surface Management Agency (SMA). An acceptable report must be provided to the SMA documenting the presence or absence of black-footed ferrets and identifying the anticipated effects of the proposed action on the black-footed ferret and its habitat. This stipulation does not apply to the operation and maintenance of production facilities.

Objective: To assure compliance with the Endangered Species Act (ESA) by locating and protecting black-footed ferrets and their habitat.

Exception: An exception may be granted by the authorized officer for surface-disturbing activities determined to have no adverse effect on black-footed ferrets and ferret habitat.

Modification: The boundaries of the stipulated area may be modified by the authorized officer if portions of the leasehold are cleared from Section 7 of the ESA or permanently cleared based on past ferret surveys.

Waiver: This stipulation may be waived if the entire leasehold is block cleared from Section 7 of the ESA, or permanently cleared based on past ferret surveys, or if the ferret is declared recovered and no longer subject to the ESA.

NO SURFACE OCCUPANCY

Resource: Wildlife - Interior Least Tern

Stipulation: Surface occupancy and use is prohibited within 1/4 mile of wetlands identified as interior least tern habitat.

Objective: To protect the habitat of the interior least tern, an endangered species under the Endangered Species Act (ESA).

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the interior least tern or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWS, determines that portions of the area are no longer critical to the interior least tern.

Waiver: The stipulation may be waived if the authorized officer, in consultation with FWS, determines that the entire leasehold no longer contains habitat critical to the interior least tern, or if the interior least tern is declared recovered and is no longer protected under the ESA.

NO SURFACE OCCUPANCY

Resource: Wildlife - Piping Plover

Stipulation: Surface occupancy and use is prohibited within 1/4 mile of wetlands identified as piping plover habitat.

Objective: To protect the habitat of the piping plover, an endangered species under the Endangered Species Act (ESA).

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the piping plover or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWS, determines that portions of the area are no longer critical to the piping plover.

Waiver: The stipulation may be waived if the authorized officer, in consultation with FWS, determines that the entire leasehold no longer contains habitat critical to the piping plover, or if the piping plover is declared recovered and is no longer protected under the ESA.

NO SURFACE OCCUPANCY

Resource: Wildlife - Peregrine Falcon

Stipulation: Surface occupancy and use is prohibited within 1 mile of identified peregrine falcon nesting sites.

Objective: To protect the habitat of the peregrine falcon, an endangered species under the Endangered Species Act (ESA).

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the peregrine falcon or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWS, determines that portions of the area no longer are critical to the peregrine falcon.

Waiver: The stipulation may be waived if the authorized officer, in consultation with FWS, determines that the entire

leasehold no longer contains habitat critical to the peregrine falcon, or if the peregrine falcon is declared recovered and is no longer protected under the ESA.

NO SURFACE OCCUPANCY

Resource: Wildlife - Bald Eagle Nest Sites and Nesting Habitat

Stipulation: Surface occupancy and use is prohibited within 1/2 mile of known bald eagle nest sites which have been active within the past 7 years and within bald eagle nesting habitat in riparian areas.

Objective: To protect bald eagle nesting sites and/or nesting habitat in accordance with the Endangered Species Act (ESA) and the Montana Bald Eagle Management Plan.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald eagle or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Waiver: This stipulation may be waived if the authorized officer, in consultation with FWS, determines that the entire leasehold can be occupied without adversely affecting bald eagle nest sites or nesting habitat, or if the bald eagle is declared recovered and is no longer protected under the ESA.

NO SURFACE OCCUPANCY

Resource: Wildlife - Ferruginous Hawk

Stipulation: Surface occupancy and use is prohibited within 1/2 mile of known ferruginous hawk nest sites which have been active within the past 2 years.

Objective: To maintain the production potential of ferruginous hawk nest sites, which are very sensitive to disturbance and have been identified as Category 2 species under the Endangered Species Act (ESA).

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that the impacts from the proposed action are acceptable or can be adequately mitigated. Seasonal exceptions may be allowed from August 1 through March 1 (the nonbreeding season) if the authorized officer determines that the proposed activity will not disturb the production potential of ferruginous hawk nest sites.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the production potential of ferruginous hawk nest sites.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold can be occupied without adversely affecting the production potential of ferruginous hawk nest sites.

TIMING

Resource: Wildlife - Raptor Nests

Stipulation: Surface use is prohibited from March 1 to August 1, within 1/2 mile of raptor nest sites which have been active within the past 2 years. This stipulation does not apply to the operation and maintenance of production facilities.

Objective: To protect nest sites of raptors which have been identified as species of special concern in Montana, North or South Dakota.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer are within 1/2 mile of raptor nest sites which have been active within the past 2 years. The dates for the timing restriction may be modified if new information indicates that the March 1 to August 1 dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer is within 1/2 mile of raptor nest sites which have been active within the past 2 years.

NO SURFACE OCCUPANCY

Resource: Wildlife - Grouse Leks

Stipulation: Surface occupancy and use is prohibited within 1/4 mile of grouse leks.

Objective: To protect sharptail and sage grouse lek sites necessary for the long-term maintenance of grouse populations in the area.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting grouse lek sites.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold can be occupied without adversely affecting grouse lek sites, or if all lek sites within 1/4 mile of the leasehold have not been used for 5 consecutive years.

TIMING

Resource: Wildlife - Grouse Nesting Zone

Stipulation: Surface use is prohibited from March 1 to June 15 in grouse nesting habitat within 2 miles of a lek. This stipulation does not apply to the operation and maintenance of production facilities.

Objective: To protect sharptail and sage grouse nesting habitat from disturbance during spring and early summer in order to maximize annual production of young, and to protect nesting activities adjacent to nesting sites for the long-term maintenance of grouse populations in the area.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer contain grouse nesting habitat within 2 miles of a lek. The dates for the timing restriction may be modified if new information indicates that the March 1 to June 15 dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer contains grouse nesting habitat within 2 miles of a lek.

TIMING

Resource: Wildlife - Crucial Winter Range

Stipulation: Surface use is prohibited from December 1 to March 31 within crucial winter range for wildlife. This stipulation

does not apply to the operation and maintenance of production facilities.

Objective: To protect crucial white-tailed deer, mule deer, elk, antelope, moose, bighorn sheep, and sage grouse winter range from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer contains crucial winter range for wildlife.

NO SURFACE OCCUPANCY

Resource: Reservoirs with Fisheries

Stipulation: Surface occupancy and use is prohibited within 1/4 mile of designated reservoirs with fisheries.

Objective: This stipulation is intended to protect the fisheries and recreational values of reservoirs.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold can be occupied without adversely affecting the fisheries and recreational values of the reservoir.

NO SURFACE OCCUPANCY

Resource: Cultural Resources

Stipulation: Surface occupancy and use is prohibited within sites or areas designated for conservation use, public use, or sociocultural use.

Objective: To protect those cultural properties identified for conservation use, public use, and sociocultural use (see definitions for use categories within BLM Manual 8111).

Exception: An exception to this stipulation may be granted by the authorized officer if the lessee or operator submits a plan which demonstrates that the cultural resource values which formed the basis for designation are not affected, or if adverse impacts are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the designated site or area can be occupied without adversely affecting the cultural resource values for which the site or area was designated.

Waiver: This stipulation may be waived if the authorized officer determines that all designated sites or areas within the leasehold can be occupied without adversely affecting the cultural resource values for which such sites or areas were designated, or if all designated sites or areas within the leasehold are allocated for other uses.

Note: Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places.

NOTICE

Cultural Resources: An inventory of the leased lands may be required prior to surface disturbance to determine if cultural resources are present and to identify needed mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator shall:

1. Contact the Surface Management Agency (SMA) to determine if a cultural resource inventory is required. If an inventory is required, then;
2. The SMA will complete the required inventory; or the lessee or operator, at their option, may engage the services of a cultural resource consultant acceptable to the SMA to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the standard ten-acre minimum to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.
3. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as data recovery and extensive recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited. The lessee or operator shall immediately bring to the attention of the SMA any cultural resources discovered as a result of approved operations under this lease, and shall not disturb such discoveries until directed to proceed by the SMA.

Authorities: Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places. Section 6 of the Oil and Gas Lease Terms (Form 3100-11) requires that operations be conducted in a manner that minimizes adverse impacts to cultural and other resources.

NO SURFACE OCCUPANCY

Resource: Paleontological Resources

Stipulation: Surface occupancy and use is prohibited within designated paleontological sites.

Objective: To protect significant paleontological sites.

Exception: An exception to this stipulation may be granted by the authorized officer if the lessee or operator submits a plan which demonstrates that the paleontological resource values which formed the basis for designation are not affected, or if adverse impacts are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the designated site can be occupied without adversely affecting the paleontological resource values for which the site was designated, or if the boundaries of the designated site are changed.

Waiver: This stipulation may be waived if the authorized officer determines that all designated sites within the leasehold can be occupied without adversely affecting the paleontological resource values for which the sites were designated, or if all designated sites within the leasehold are allocated for other uses.

STIPULATIONS - ALTERNATIVE E (Preferred Alternative)

CONTROLLED SURFACE USE

Resource: Soils

Stipulation: Prior to surface disturbance on slopes over 30 percent, an engineering/reclamation plan must be approved by the authorized officer. Such plan must demonstrate how the following will be accomplished:

- Site productivity will be restored.
- Surface runoff will be adequately controlled.
- Off-site areas will be protected from accelerated erosion, such as rilling, gullying, piping, and mass wasting.
- Water quality and quantity will be in conformance with state and federal water quality laws.
- Surface-disturbing activities will not be conducted during extended wet periods.
- Construction will not be allowed when soils are frozen.

Objective: To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes, and to avoid areas subject to slope failure, mass wasting, piping, or having excessive reclamation problems.

Exception: None.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area do not include slopes over 30 percent.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the entire leasehold does not include slopes over 30 percent.

NO SURFACE OCCUPANCY

Resource: Riparian/Hydrology

Stipulation: Surface occupancy and use is prohibited within riparian areas, 100-year flood plains of major rivers, and on water bodies and streams.

Objective: To protect riparian vegetation and reduce erosion adjacent to water courses and protect reservoirs greater than 10 surface acres in size.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this stipulation may be modified by the authorized officer if it is determined that portions of the area do not include riparian areas, flood plains, or water bodies.

Waiver: This stipulation may be waived by the authorized officer if it is determined that the entire leasehold does not include riparian areas, flood plains, or water bodies.

NO SURFACE OCCUPANCY

Resource: Land Use Authorizations

Stipulation: Surface occupancy and use is prohibited on FLPMA leases, permits, easements, and Rights-of-Way (ROWs).

Objective: To protect uses under existing FLPMA leases, permits, easements, and ROWs.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The area affected by this stipulation may be modified by the authorized officer if the land use authorization boundaries are modified.

Waiver: This stipulation may be waived by the authorized officer if all land use authorizations within the leasehold have been terminated, canceled, or relinquished.

NO SURFACE OCCUPANCY

Resource: Recreation

Stipulation: Surface occupancy and use is prohibited within developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Objective: To protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified by the authorized officer if the recreation area boundaries are changed.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer contains developed recreation areas or undeveloped recreation areas receiving concentrated public use.

NO SURFACE OCCUPANCY

Resource: Visual Resource Management (VRM) Class I

Stipulation: Surface occupancy and use is prohibited in VRM Class I areas (i.e., Wilderness, Wild and Scenic Rivers, etc.).

Objective: To preserve the existing character of the landscape.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan demonstrating that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified by the authorized officer if the boundaries of the VRM Class I area are changed.

Waiver: This stipulation may be waived by the authorized officer if all VRM Class I areas within the leasehold are reduced to a lower VRM class. Areas reduced to a lower VRM class will be subject to the Controlled Surface Use stipulation for visual resources.

CONTROLLED SURFACE USE

Resource: Visual Resource Management (VRM) Class II

Stipulation: All surface-disturbing activities, semipermanent and permanent facilities in VRM Class II areas may require special design including location, painting and camouflage to blend with the natural surroundings and meet the visual quality objectives for the area.

Objectives: To control the visual impacts of activities and facilities within acceptable levels.

Exception: None.

Modification: None.

Waiver: None.

CONTROLLED SURFACE USE

Resource: Prairie dog towns within potential black-footed ferret reintroduction areas that have been determined to be essential for black-footed ferret recovery.

Stipulation: The "Draft Guidelines for Oil and Gas Activities in Prairie Dog Ecosystems Managed for Black-Footed Ferret Recovery," FWS, 1990, will be used as appropriate to develop site-specific conditions of approval to protect black-footed ferret reintroduction and recovery. Specific conditions of approval will depend on type and duration of proposed activity, proximity to occupied ferret habitat, and other site-specific conditions.

Objective: To maintain the integrity of designated black-footed ferret reintroduction area habitat for reintroduction and recovery of black-footed ferrets.

Exception: May be granted by the authorized officer for activities that are determined, through coordination with the MBFCC to have no adverse impacts on reintroduction and recovery of ferrets.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in coordination with the MBFCC, determines that portions of the area are no longer essential for ferret reintroduction and recovery.

Waiver: The stipulation may be waived if the authorized officer, in coordination with the MBFCC, determines that the entire leasehold no longer contains habitat essential for the reintroduction and recovery of the ferret or if the ferret is removed from protection under the Endangered Species Act.

NO SURFACE OCCUPANCY

Resource: Wildlife - Interior Least Tern

Stipulation: Surface occupancy and use is prohibited within 1/4 mile of wetlands identified as interior least tern habitat.

Objective: To protect the habitat of the interior least tern, an endangered species under the Endangered Species Act (ESA).

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the interior least tern or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWS, determines that portions of the area are no longer critical to the interior least tern.

Waiver: The stipulation may be waived if the authorized officer, in consultation with FWS, determines that the entire leasehold no longer contains habitat critical to the interior least tern, or if the interior least tern is declared recovered and is no longer protected under the ESA.

NO SURFACE OCCUPANCY

Resource: Wildlife - Piping Plover

Stipulation: Surface occupancy and use is prohibited within 1/4 mile of wetlands identified as piping plover habitat.

Objective: This stipulation is to be applied to the area around Nelson Reservoir which is the only known nesting site for the species at the current time.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the piping plover or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated.

This plan must be approved by BLM in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWS, determines that portions of the area are no longer critical to the piping plover.

Waiver: The stipulation may be waived if the authorized officer, in consultation with FWS, determines that the entire leasehold no longer contains habitat critical to the piping plover, or if the piping plover is declared recovered and is no longer protected under the ESA.

NO SURFACE OCCUPANCY

Resource: Wildlife - Peregrine Falcon

Stipulation: Surface occupancy and use is prohibited within 1 mile of identified peregrine falcon nesting sites.

Objective: To protect the habitat of the peregrine falcon, an endangered species under the Endangered Species Act (ESA).

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the peregrine falcon or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWS, determines that portions of the area no longer are critical to the peregrine falcon.

Waiver: The stipulation may be waived if the authorized officer, in consultation with FWS, determines that the entire leasehold no longer contains habitat critical to the peregrine falcon, or if the peregrine falcon is declared recovered and is no longer protected under the ESA.

NO SURFACE OCCUPANCY

Resource: Wildlife - Bald Eagle Nest Sites and Nesting Habitat

Stipulation: Surface occupancy and use is prohibited within 1/2 mile of known bald eagle nest sites which have been active within the past 7 years and within bald eagle nesting habitat in riparian areas.

Objective: To protect bald eagle nesting sites and/or nesting habitat in accordance with the Endangered Species Act (ESA) and the Montana Bald Eagle Management Plan.

Exception: An exception may be granted by the authorized officer if the operator submits a plan which demonstrates that the proposed action will not affect the bald eagle or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by BLM in consultation with the U.S. Fish and Wildlife Service (FWS).

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with FWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Waiver: This stipulation may be waived if the authorized officer, in consultation with FWS, determines that the entire leasehold can be occupied without adversely affecting bald eagle nest sites or nesting habitat, or if the bald eagle is declared recovered and is no longer protected under the ESA.

TIMING

Resource: Wildlife - Raptor Nests

Stipulation: Surface use is prohibited from March 1 to August 1, within 1/2 mile of raptor nest sites which have been active

within the past 2 years. This stipulation does not apply to the operation and maintenance of production facilities. Raptor species of concern: Golden Eagle, Northern Goshawk, Ferruginous Hawk, Merlin, Prairie Falcon, Red Tail Hawk, Great Horned Owl, Northern Saw-whet Owl, Coopers Hawk, Burrowing Owl, and Swainson's Hawk.

Objective: This stipulation is consistent with the guidelines used in the West Hiline and Headwaters RMPs which border the planning area on the North and West making its use uniform throughout the Lewistown District. This stipulation can be implemented at the time of an onsite inspection for drilling permits and sundry notices which involve surface disturbance activity which would be disruptive to the nesting species. A stipulation which addresses occupied nests is more easily documented as to species and duration of use.

The historical activity in the planning area, associated with oil and gas exploration and development, involving shallow wells with small areas of surface disturbance and lasting for short duration are not considered incompatible with nesting raptor species covered by this stipulation.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer are within 1/2 mile of raptor nest sites which have been active within the past 2 years. The dates for the timing restriction may be modified if new information indicates that the March 1 to August 1 dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer is within 1/2 mile of raptor nest sites which have been active within the past 2 years.

NO SURFACE OCCUPANCY - TIMING

Resource: Wildlife - Grouse Leks

Stipulation: No surface occupancy for lek. Seasonal restriction on exploration from March 15 to June 15, for a distance of 1/4 mile from lek to protect nesting habitat.

Objective: The actual lek defines the area where winter and spring use of the surrounding habitat is concentrated. The integrity of the actual lek must be protected to insure use (this is assigned an average of 1/4 acre). This stipulation will allow flexibility to restrict activity at the time surface disturbance is proposed on the lease. It will involve less delay in the permitting process and provide the appropriate level of protection for the species. The use of the time and distance combination to stipulate protection for associated nest habitat around the lek is a restriction that has worked well in the past in this area and it is a procedure that local oil and gas operators are familiar with. Because of the heavy concentration of grouse habitat on BLM land, use of a larger NSO stipulation would not be practical in the planning area. Much of the area, that is currently open, would be closed to drilling and producing if a 1/4 mile NSO restriction is adopted for the grouse lek. Directional drilling for shallow gas wells is not technically or economically feasible. The drastic change from past mitigation measures, that this stipulation represents is not needed to insure adequate protection for grouse populations in the area. This has been documented by monitoring the species over the last ten years while the stipulation with seasonal protection has been in effect.

Exception: The authorized officer can grant an exception to a specific activity if it is determined by the biologist that the area of disturbance will not constitute a loss of habitat.

Modification: A portion of the leased lands can be open to activity if field inspection shows that species using the lek or nesting habitat is not in the area.

Waiver: This stipulation can be waived when the available data shows that the portion of the lease under the restriction is no longer occupied by the species for a lek or nest habitat.

TIMING

Resource: Wildlife - Crucial Winter Range

Stipulation: Surface use is prohibited from December 1 to March 31 within crucial winter range for wildlife. This stipulation does not apply to the operation and maintenance of production facilities.

Objective: To protect crucial white-tailed deer, mule deer, elk, antelope, moose, bighorn sheep, and sage grouse winter range from disturbance during the winter use season, and to facilitate long-term maintenance of wildlife populations.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction may be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the leasehold.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold no longer contains crucial winter range for wildlife.

NO SURFACE OCCUPANCY

Resource: Reservoirs with Fisheries

Stipulation: Surface occupancy and use is prohibited within 1/4 mile of designated reservoirs with fisheries.

Objective: This stipulation is intended to protect the fisheries and recreational values of reservoirs.

Exception: An exception to this stipulation may be granted by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir.

Waiver: This stipulation may be waived if the authorized officer determines that the entire leasehold can be occupied without adversely affecting the fisheries and recreational values of the reservoir.

NO SURFACE OCCUPANCY

Resource: Cultural Resources.

Stipulation: Surface occupancy and use is prohibited within sites or areas designated for conservation use, public use, or sociocultural use.

Objective: To protect those cultural properties identified for conservation use, public use, and sociocultural use (see definitions for use categories within BLM Manual 8111).

Exception: An exception to this stipulation may be granted by the authorized officer if the lessee or operator submits a plan which demonstrates that the cultural resource values which formed the basis for designation are not affected, or if adverse impacts are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the designated site or area can be occupied without adversely affecting the cultural resource values for which the site or area was designated.

Waiver: This stipulation may be waived if the authorized officer determines that all designated sites or areas within the leasehold can be occupied without adversely affecting the cultural resource values for which such sites or areas were designated, or if all designated sites or areas within the leasehold are allocated for other uses.

Note: Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect

cultural properties eligible to the National Register of Historic Places.

NOTICE

Cultural Resources: The Surface Management Agency is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Guidance for application of this requirement can be found in NTL-MSO-85-1.

Objective: This Notice would be consistent with the present Montana guidance for cultural resource protection related to oil and gas operations (NTL-MSO-85-1).

Exception: None.

Modification: None.

Waiver: None.

NO SURFACE OCCUPANCY

Resource: Paleontological Resources

Stipulation: Surface occupancy and use is prohibited within designated paleontological sites.

Objective: To protect significant paleontological sites. There is only one 40 acre site within the district to which this applies. It is located in an area with moderate oil and gas potential. There are several quarry sites which should not be disturbed.

Exception: An exception to this stipulation may be granted by the authorized officer if the lessee or operator submits a plan which demonstrates that the paleontological resource values which formed the basis for designation are not affected, or if adverse impacts are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the designated site can be occupied without adversely affecting the paleontological resource values for which the site was designated, or if the boundaries of the designated site are changed.

Waiver: This stipulation may be waived if the authorized officer determines that all designated sites within the leasehold can be occupied without adversely affecting the paleontological resource values for which the sites were designated, or if all designated sites within the leasehold are allocated for other uses.

APPENDIX ATTACHMENT B.1

United States Department of the Interior
Bureau of Land Management
Montana State Office

NO SURFACE OCCUPANCY STIPULATION

Serial No. _____

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

For the purpose of:

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

MT-3109-2 (July 1989)

United States Department of the Interior
Bureau of Land Management
Montana State Office

TIMING LIMITATION STIPULATION

Serial No. _____

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

On the lands described below:

For the purpose of (reasons):

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

MT-3109-3 (July 1989)

CONTROLLED SURFACE USE STIPULATION

Serial No. _____

Surface occupancy or use is subject to the following special operating constraints.

On the lands described below:

For the purpose of:

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

MT-3109-4 (July 1989)

**APPENDIX ATTACHMENT B.2
STANDARD CONDITIONS OF APPROVAL**

The Application for Permit to Drill is approved, subject to the following conditions:

Conditions for Approval

1. Site Specific Stipulations:

- a. Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

2. Notification Requirements:

- a. Notify this office verbally at least ____ hours before the well is spudded.
- b. Notify this office verbally at least ____ hours prior to running/cementing casing.
- c. For verbal plugging orders, notify this office at least ____ hours prior to plugging.

3. A complete copy of the approved Application for Permit to Drill (APD), including the H2S contingency plan (if required) must be on the well site and available for reference during the construction and drilling phase.

4. The drilling permit is valid for either one (1) year from the approval date or until lease expiration, whichever occurs first.

5. Dikes must be constructed to API standards around storage and treatment facilities for liquids. The dike must be sufficient size to contain the contents of the largest tank plus one day's production.

6. Dry Hole Marker

Upon abandonment, the following marker is required. It must contain the same information as the well sign (see Information Notice, Item No. 6). Weep holes will be placed in all plates welded over the annulus(es) and in the dry hole marker.

A 4" diameter, 4' high pipe, welded to casing or set in cement.

A steel plate welded to surface casing at ground level.

A steel plate welded to surface casing 4' below ground level.

7. Hazardous wastes, as defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), will not be utilized in the drilling, testing, and completion operation.

Informational Notice

The following items are from the Federal Oil and Gas regulations (43 CFR Part 3160) and from other public notices (Onshore Order No. 1, Notices to Lessees).

This is not a complete list, but is an abstract of some major requirements.

1. General Requirements (3162.1(a))

The lessee shall comply with applicable laws and regulations; with the lease terms, Onshore Oil and Gas Orders; NTLs; and with other orders and instructions of the authorized officer.

2. Substantial deviation for the terms of this APD require prior approval:

- a Subsequent well operations (3162.3-2, Onshore Order No. 1, Sec. IV).

Prior written approval on Form 3160-5, followed by subsequent report on 3160-5 is required for the following additional operations: redrill, deepen, perform casing repairs, plug-back alter casing, perform non-routine fracturing jobs, recompleting in a different interval, perform water shutoff, conversion to injection or disposal. Reports are to be in triplicate.

b. Other lease operations (3162.3-3), Onshore Order No. 1, Sec. IV).

Any operation causing surface disturbance beyond the approved APD submitted for prior approval on Form 3160-5, in triplicate.

3. Well Abandonment (3162.3-4, Onshore Order No. 1, Sec. V).

Prior approval for abandonment must be granted. Initial approval may be verbal; subsequent notifications are to be on Form 3160-5 in triplicate.

4. Reports and Notifications (3162.4-1, 3162.4-3, Operating Form chart at beginning of 43 CFR Part 3160).

a. Form 3160-4, Well Completion or Recompletion Report (in duplicate) and 2 copies of logs, due 30 days after well completion.

b. One copy MMS Form 3160, Monthly Report of Operations, for each calendar month, beginning with the month in which drilling operations are initiated. This report is due to Minerals Management Service on or before the 15th day of the second month following the month of production (e.g., the report for May is due on July 15).

c. Section 102(b)(3) of the Federal Oil and Gas Royalty Management Act of 1982, as implemented by the applicable provisions of the operating regulations at Title 43 CFR 3162.4-1(c), requires that "not later than the 5th business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than 90 days, the operator shall notify the authorized officer by letter or Sundry Notice, Form 3160-5, orally to be followed by a letter or Sundry Notice, of the date on which such production has begun or resumed."

The date on which production is commenced or resumed will be construed for oil wells as the date on which liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank and for which a run ticket is required to be generated, or the date on which liquid hydrocarbons are first produced into a permanent storage facility, whichever first occurs; and, for gas wells as the date on which associated liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated or, the date on which gas is first measured through permanent metering facilities, whichever first occurs.

If you fail to comply with this requirement in the manner and time allowed, you shall be liable for a civil penalty of up to \$10,000 per violation for each day such violation continues, not to exceed a maximum of 20 days. See Section 109(c)(3) of the Federal Oil and Gas Royalty Management Act of 1982 and the implementing regulations at Title 43 CFR 3163.2(E)(2).

5. Environmental Obligations (3162.5-1, Notices to Lessees 2B, 3A, 4A)

a. With BLM approval, water produced from newly completed wells may be temporarily disposed of into unlined pits for up to 90 days. During this initial period, application for the permanent disposal method must be made in accordance with NTL-2B.

b. Spills, accidents, fires, injuries, blowout and other undesirable events, as described in Notice to Lessees 3A, must be reported to this office within the time frames in NTL-3A.

c. Gas may be vented or flared during emergencies, well evaluation, or initial production tests for a time period of up to 30 days or the production of 50 MMCF of gas, whichever occurs first. After this period, you must obtain approval from the authorized officer to flare or vent in accordance with NTL-4A.

6. Well Identification (3162.6).

Each drilling, producing or abandoned well shall be identified with the operator's name, the lease serial number, the well number and the surveyed description of the well (either footages or the quarter section, the section, township and range). The Indian allottee lessor's name may also be required. All markings must be legible and in a conspicuous place.

7. Site Security on Federal and Indian Oil and Gas Leases (3162.7-4).

- a. Oil storage facilities must be clearly identified with a sign and tanks must be individually identified (3162.7-4(b)(6)).
- b. Site security plans must be completed within 30 days of construction or first production (3162.7-4(c)).
- c. Site facility diagrams must be filed within 30 days after facilities are installed or modified (3162.7-4(d)).

8. Confidentiality (3162.8)

All submitted information not marked "CONFIDENTIAL INFORMATION" will be available for public inspection upon request. The exception is Indian lease information which is always considered confidential.

9. APD and Surface Use SN Authorization.

If at any time the facilities located on public lands authorized by the terms of the lease are no longer included in the lease (due to a contraction in the unit or other lease or unit boundary change) the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental, or other financial obligation determined by the authorized officer.

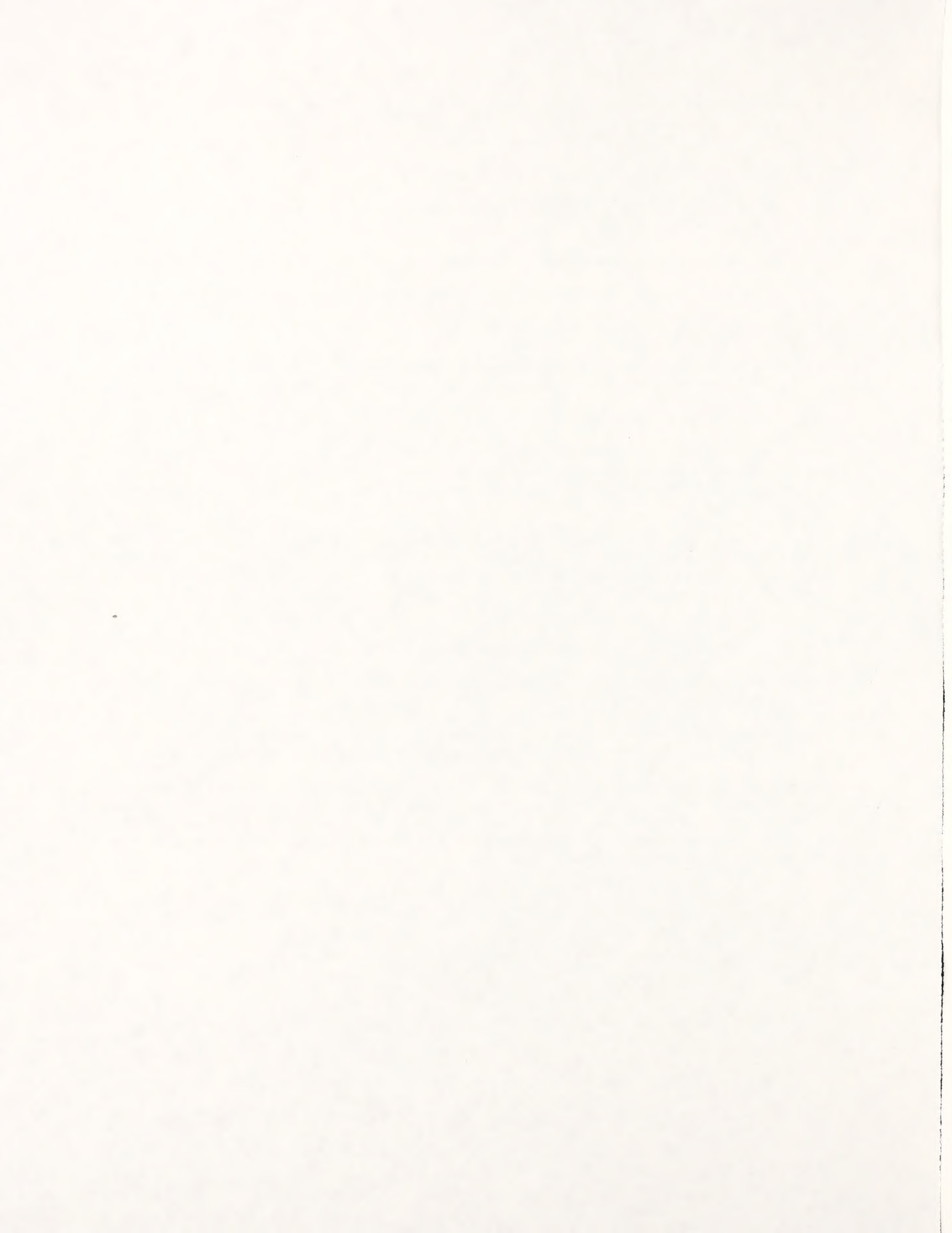
10. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;

- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,

- a timeframe for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.



APPENDIX ATTACHMENT B3

SPECIAL STIPULATION - BUREAU OF RECLAMATION

To avoid interference with recreation development and/or impacts to fish and wildlife habitat and to assist in preventing damage to any Bureau of Reclamation dams, reservoirs, canals, ditches, laterals, tunnels, and related facilities, and contamination of the water supply therein, the lessee agrees that the following conditions shall apply to all exploration and developmental activities and other operation of the works thereafter on lands covered by this lease:

1. Prior to commencement of any surface-disturbing work including drilling, access road work, and well location construction, a surface use and operations plan will be filed with the appropriate officials. A copy of this plan will be furnished to the Regional Director, Great Plains Region, Bureau of Reclamation, P.O. Box 36900, Billings, MT 59107-6900, for review and consent prior to approval of the plan. Such approval will be conditioned on reasonable requirements needed to prevent soil erosion, water pollution, and unnecessary damages to the surface vegetation and other resources, including cultural resources, of the United States, its lessees, permittees, or licensees, and to provide for the restoration of the land surface and vegetation. The plan shall contain provisions as the Bureau of Reclamation may deem necessary to maintain proper management of the water, recreation, lands, structures, and resources, including cultural resources, within the prospecting, drilling, or construction area.

Drilling sites for all wells and associated investigations such as seismograph work shall be included in the above-mentioned surface use and operation plan.

If later explorations require departure from or additions to the approved plan, these revisions or amendments, together with a justification statement for proposed revisions, will be submitted for approval to the Regional Director, Great Plains Region, Bureau of Reclamation, or his authorized representative.

Any operations conducted in advance of approval of an original, revised, or amended prospecting plan, or which are not in accordance with an approved plan constitute a violation of the terms of this lease. The Bureau of Reclamation reserves the right to close down operations until such corrective action, as is deemed necessary, is taken by the lessee.

2. No occupancy of the surface of the following excluded areas is authorized by this lease. It is understood and agreed that the use of these areas for Bureau of Reclamation purposes is superior to any other use. The excluded areas are:

- a. Within 500 feet on either side of the centerline of any and all roads or highways within the leased area.
- b. Within 200 feet on either side of the centerline of any and all trails within the leased area.
- c. Within 500 feet of the normal high-water line of any and all live streams in the leased area.
- d. Within 400 feet of any and all recreation developments within the leased area.
- e. Within 400 feet of any improvements either owned, permitted, leased, or otherwise authorized by the Bureau of Reclamation within the leased area.
- f. Within 200 feet of established crop fields, food plots, and tree/shrub plantings within the leased area.
- g. Within 200 feet of slopes steeper than a 2:1 gradient within the leased area.
- h. Within established rights-of-way of canals, laterals, and drainage ditches within the leased area.
- i. Within a minimum of 500 feet horizontal from the centerline of the facility or 50 feet from the outside toe of the canal, lateral, or drain embankment, whichever distance is greater, for irrigation facilities without clearly marked rights-of-way within the leased area.

3. No occupancy of the surface or surface drilling will be allowed in the following areas. In addition, no directional drilling will be allowed in the following areas. In addition, no directional drilling will be allowed that would intersect the subsurface

zones delineated by a vertical plane in these areas.

a. Within 1,000 feet of the maximum water surface, as defined in the Standing Operating Procedures (SOP), of any reservoirs and related facilities located within the leased area.

b. Within 2,000 feet of dam embankments and appurtenance structures such as spillway structures, outlet works, etc.

c. Within one-half (1/2) mile horizontal from the centerline of any tunnel within the leased area.

4. The distances stated in items 2 and 3 above are intended to be general indicators only. The Bureau of Reclamation reserves the right to revise these distances as needed to protect Bureau of Reclamation facilities.

5. The use of explosives in any manner shall be so controlled that the works and facilities of the United States, its successors and assigns will in no way be endangered or damaged. In this connection, an explosives use plan shall be submitted to and approved by the Regional Director, Great Plains Region, Bureau of Reclamation, or his authorized representative.

6. The lessee shall be liable for all damage to the property of the United States, its successors and assigns, resulting from the exploration, development, or operation of the works contemplated by this lease, and shall further hold the United States, its successors and assigns, and its officers, agents, and employees, harmless from all claims of third parties for injury or damage sustained or in any way resulting from the exercise of the rights and privileges conferred by this lease.

7. The lessee shall be liable for all damage to crops or improvements any entryman, nonmineral applicant, or patentee, their successors and assigns, caused by or resulting from the drilling or other operations of the lessee, including reimbursement of any entryman or patentee, their successors and assigns, for all construction, operation, and maintenance charges becoming due on any portion of their said lands damaged as a result of the drilling or other operations of the lessee.

8. In addition to any other bond required under the provisions of this lease, the lessee shall provide such bond as the United States may at any time require for damages which may arise under the liability provisions of sections six (6) and seven (7) above.

Date

Signature of Lessee

APPENDIX C

HARDROCK MINERAL RESOURCES REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

INTRODUCTION

Purpose

The purpose of the reasonably foreseeable development scenario (RFD) is to provide a model that anticipates the level and type of future hardrock mineral activity in the planning area; and will serve as a basis for cumulative impacts analysis. The RFD first describes the main legal framework of hardrock development, the Mining Law of 1872. Next a is discussion of the steps involved in developing a mineral deposit, with presentation of several hypothetical mining operations. The current activity levels are briefly addressed. Future trends and assumptions affecting mineral activity are then discussed, followed by predictions and identification of anticipated mineral exploration and development. The RFD is based on the current management situation. A section that describes variations in the RFD by alternative is included.

Scope

The RFD is based on the known or inferred mineral resource capabilities of the lands involved, and applies the conditions and assumptions discussed under Future Trends and Assumptions. Changes in available geologic data and/or economic conditions would alter the RFD, and some deviation is to be expected over time.

The development scenario is limited in scope to the planning area. The types of land included is restricted to federal, or federal minerals only, administered by the BLM. Activities on private, state, or Forest Service lands are included when BLM lands or minerals are nearby and may be involved or affected.

The mineral commodities dominating activity are gold and silver, though there is some minor activity for sapphires in the Yogo Gulch area. The RFD will pay special attention to precious metal mining since this activity coincides with large amounts of BLM land ownership.

Bentonite development has been discussed in Management Common to All Alternatives, and a reasonably foreseeable development model will not be developed.

Resource Area Description

A detailed description of planning area geology and mining history can be found in Chapter 3. A brief discussion follows.

The areas with the highest levels of both current activity and future mineral development potential are the alkalic igneous intrusive centers in the planning area, mainly the Judith Mountains, the North and South Moccasin Mountains, and the Little Rocky Mountains. Diverse types of significant epithermal gold mineralization occurs at these intrusive centers. The mineralization took place during the late stages of igneous activity during the Tertiary period. Gold mineralization ranges from igneous hosted stockworks or fracture sets (Zortman-Landusky) and breccia pipes (Moccasin Mountains) to replacement zones in the flanking and upturned Madison Group limestones (Giltedge and Kendall districts). The latter are mostly localized by intraformation solution breccias in the upper Madison, near the porphyry contacts. Gold occurs as auriferous pyrite, sylvanite, or in native form. Mineralization is accompanied by varying amounts of silver, base metal and tellurides, with quartz, fluorite, carbonate and barite (Giles, 1982).

THE MINING LAW

History

The General Mining Law of 1872 (17 Stat. 91) is the authorizing act for hardrock mineral exploration and development in the planning area. The origin of the Mining Law can be traced to the 16th century, and reflects close ties to English and Spanish traditions.

Early American colonial charters contained outright grants of mineral land to settlers, however, these grants were accompanied by certain permanent reservations of precious metals to the sovereign. This formed the basis for the early traditions and customs regarding mineral rights for the colonies in the eastern part of the United States until the early 1800's.

In the western states, and especially in the Southwest, mining customs and traditions were derived from the Royal Code of 1783. This code formed the basis for acquisition of mineral rights by miners, and settlement of disputes between claimants.

In 1849 there was no formal mining law in the United States. Congress passed several leasing or sales acts of limited duration for gold, silver, lead and iron. These acts were administered by the War Department. In 1849, when the California gold rush started, miners were technically in mineral trespass when they located claims on the public domain. The gold rush brought into conflict the two mining traditions. In 1860, the silver strike in the Comstock Lode in Nevada started a second mining rush to the West, opening up further conflict between the two mining traditions. As eastern interests were financing the Comstock Lode as well as the California Mother Lode, the question of security of title and tenure became a major political issue in Congress.

From 1865 to 1885, congressional policy for the public lands focused on encouraging westward migration of people to settle and develop the West. In furthering this policy a series of statutes was passed including various homestead acts, agricultural entry laws, soldier compensation acts and several acts designed to emphasize mineral exploration and development.

On July 26, 1866, the first mining law was passed as the Lode Law of 1866 (14 Stat. 251). This act provided for the entry and location of lode claims, assessment work and patents for lode claims.

The Placer Act was passed on July 9, 1870. It provided for the entry and location of placer claims on non-agricultural land, for location by legal description, and for patent.

These two acts were consolidated, with amendments, into the General Mining Law of May 10, 1872. This statute is the basis for appropriation of hardrock mineral resources from the public domain today.

Principles

The Mining Law consists of five basic elements: discovery of a valuable mineral, location of mining claims, recordation of claims, maintenance - performance of annual requirements on claims, and patenting of the mineral, and possibly surface, estate to the claimant.

Discovery

There is no federal statutory definition of what constitutes a valuable mineral deposit. Several judicial and administrative rulings or declarations on the subject have been made. In 1894 in the case of Castle v. Womble, the Department of the Interior established the "prudent man rule." This rule states:

"...where minerals have been found and the evidence is of such a character that a person of ordinary prudence would be justified in the further expenditure of his labor and means, with a reasonable prospect of success in developing a valuable mine, the requirements of the statutes have been met."

This definition was approved by the United States Supreme Court in 1905.

In 1968 in the case of U.S. v. Coleman, the Supreme Court approved the marketability test as a complement to the prudent man rule. This test requires a showing of marketability to confirm that a mineral could be mined, removed and marketed at a profit. In other words, the marketability test takes into account economics, requiring the claimant to show that there is a reasonable prospect of selling material from a claim or a group of claims. It is not necessary that the material has been sold or is selling at a profit, but that there is a reasonable likelihood that it could be sold at a profit. Demonstrating an established market is not difficult for precious metal commodities.

Location

Mining claims may be located only by citizens of the United States, persons who have declared an intention to become citizens, and corporations organized under any State law. Mining claims may only be located on federal lands open to mineral entry under the mining laws, and only for mineral commodities considered to be "locatable". A complete list of locatable mineral commodities would be exhaustive. Basically a mineral is locatable if it is in the public domain, and is a metallic mineral, or one of uncommon variety valuable chiefly for chemical, rather than physical properties. Mining claims may be located before or after discovery of a valuable mineral, on unappropriated public domain land. This claim grants the locator an exclusive possessory right to the mineral deposit. This possessory right allows the locator to continue to develop the claim as provided for by law. It is valid against the United States and other claimants only if a valuable mineral deposit has been discovered.

There are two types of mining claims; lode, and placer. Lode claims are located on indurated bedrock; while placer claims are usually located on loosely consolidated materials such as mineral bearing sands and gravels. Two additional types of mining claims may be located under the mining law: mill sites, and tunnel sites. A mill site may be located on unappropriated public domain land that is nonmineral in character. It is used for the erection of a mill or reduction works, or for other uses reasonably incident to a mining operation. A tunnel site may be located on a plot of land where a tunnel is run to develop a vein or lode, or for the purpose of intersecting unknown veins or lodes.

The actual location of a mining claim in Montana involves posting a notice of location at the discovery point; and erecting corner posts, or monuments, on the ground to insure that the claim boundaries are readily identifiable.

Recordation

Prior to the Federal Land Policy and Management Act (FLPMA), claimants were required to file their location and assessment notices only in the office of the County Recorder, or County Clerk, in the county in which the claim was located. Since enactment of FLPMA, notices of location and other notices must be filed with the BLM state office, as well as the appropriate county recorder. This requirement has allowed BLM to know the number and types of claims located on public land and their current status. Failure to file these documents with the BLM is considered abandonment of a mining claim.

Maintenance

The General Mining Law of 1872 requires performance of an annual minimum of \$100 worth of labor or improvements to retain a possessory interest in the claim. An affidavit of assessment work must be filed with both the county recorder, and with the BLM state office. Owners of mill and tunnel sites are not required to file assessment work, but are required to file a notice of intent to hold the site.

Exploration and mining activities on BLM administered lands are subject to regulation under 43 CFR 3802 and 43 CFR 3809. These regulations require that an operator prevent unnecessary or undue degradation and perform reasonable reclamation.

Patents

It is not necessary to have a patent to mine and remove minerals from a mining claim. In fact, it is not even necessary to have a mining claim at all if the land is open to mineral entry. However, a patent gives the owner exclusive title to the locatable minerals and, in most cases, to the surface estate. In order to obtain patent the claimant must have performed at least \$500 worth of development work per claim; had a mineral survey and plat prepared at their expense; show they hold possessory rights by chain of title documents; publish a notice for potential adverse claimants to assert their claims; and demonstrate discovery of a valuable mineral deposit within the meaning of the Mining Law.

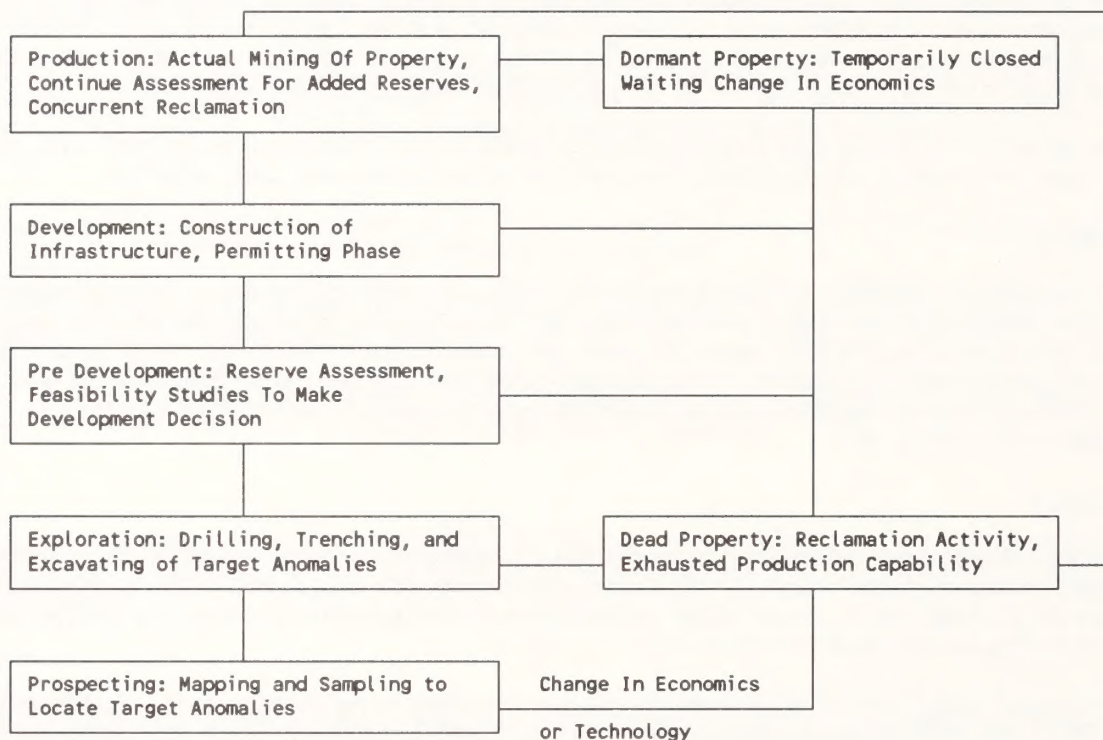
Upon satisfactory completion of the above requirements the claimant is given the opportunity to purchase the mining claim(s) at \$2.50 per acre for placer claims and \$5 per acre for lode claims.

DEVELOPMENT OF A MINE

The development of a mine from exploration to production can be divided into six stages. Each stage requires the application of more discriminating (and more expensive) techniques over a successively smaller land area to identify, develop, and produce an economic mineral deposit.

A full sequence of developing a mineral project involves the following stages: appraisal of a large region, reconnaissance of selected parts of the region, detailed surface investigation of a target area, three dimensional physical sampling of the target area, development of the mine infrastructure and actual production. These can be grouped into four categories: Reconnaissance, Prospecting, Exploration, and Mine Development. A diagram showing the relationship of these various stages in the life of a mine is shown in Figure C.1.

FIGURE C.1 - MINE LIFE CYCLE DIAGRAM



Source: BLM, 1990

Reconnaissance

Reconnaissance level activity is the first stage in exploring for a mineral deposit. This activity involves initial literature search of an area of interest, using available references such as publications, reports, maps, aerial photos, etc. The area of study can vary from hundreds to thousands of square miles.

Activity that will normally take place includes large scale mapping, regional geochemical and geophysical studies, and remote sensing with aerial photography or satellite imagery. These studies are usually undertaken by academic or government entities, or major corporations.

The type of surface disturbing activity associated with reconnaissance level mineral inventory is usually no more than occasional stream sediment, or soil and rock, sampling. Minor off-road vehicle use may be required.

Prospecting

As the result of anomalous geochemical or geophysical readings, unique geologic structure or feature, occurrence of typical mineral bearing formations, or a historical reference to past mineral occurrence, the prospecting area of interest is identified through reconnaissance. This area may range from a single square mile to an entire mountain range of several hundred square miles.

Activity that will take place in an effort to locate a mineral prospect include more detailed mapping, sampling, geochemical and geophysical study programs. Also this is the time when property acquisition efforts usually begin, and most mining claims are located in order to secure ground while trying to make a mineral discovery. Prospecting on an annual basis is considered a minimum requirement, under the mining laws, to secure a claim.

Types of surface disturbing activity associated with prospecting would involve more intense soil and rock chip sampling using mostly hand tools, frequent off-road vehicle use, and placement and maintenance of mining claim monuments. This activity is normally considered "casual use" (43 CFR 3809.1-2) and does not require BLM notification or approval.

Exploration

Upon location of a sufficiently anomalous mineral occurrence, or favorable occurrence indicator, a mineral prospect is established and is subjected to more intense evaluation through exploration techniques.

Activities that take place during exploration include those utilized during prospecting but at a more intense level in a smaller area. In addition activities such as road building, trenching, and drilling are conducted. In later stages of exploration an exploratory adit or shaft may be driven. If the prospect already has underground workings these may be sampled, drilled, or extended. Exploration activities utilize mechanized earth moving equipment, drill rigs, etc., and may involve the use of explosives.

A typical exploration project in the planning area would require construction of approximately 5,000 feet of access road, establishment of about a dozen drill sites, with several holes at each site drilled to less than 500 feet deep, and possibly several trenches 200 feet by 8 feet by 6 to 8 feet deep. If initial results are encouraging, the exploration program will be expanded to determine the limits of the deposit. Most surface disturbance associated with exploration projects amounts to less than 5 acres and is conducted under a Notice (43 CFR 3809.1-3) and requires the operator to notify BLM 15 days before beginning activity.

Mine Development

If exploration results show that an economically viable mineral deposit may be present, activity will intensify to obtain detailed knowledge regarding reserves, possible mining methods, and mineral processing requirements. This will involve applying all the previously utilized exploration tools in a more intense effort. Once enough information is acquired a feasibility study will be made to decide whether to proceed with mine development and what mining and ore processing methods will be utilized.

Once the decision to develop the property is made the mine permitting process begins. Upon approval, work begins on development of the mine infrastructure. This includes construction of the mill, offices and laboratory; driving of development workings if the property is to be underground mined, or prestripping if it is to be open pit mined; and building of access roads or haulage routes, and placement of utility services. During this time additional refinement of ore reserves is made.

Once enough facilities are in place actual mine production begins. Concurrent with production often are "satellite" exploration efforts to expand the mine's reserve base and extend the project life. Upon completion of, or concurrent with mining, the property is reclaimed. Often subeconomic resources remain unmined and the property is dormant, waiting for changes in commodity price or production technology that would make these resources economic (see Figure C.1).

Activities that occur on these lands include: actual mining, ore processing, tailings disposal, waste rock placement, solution processing, metal refining, and placement of support facilities such as repair shops, labs, and offices. Such activities

involve the use of heavy earthmoving equipment and explosives for mining and materials handling, exploration equipment for refinement of the ore reserve base, hazardous or dangerous reagents for processing requirements, and general construction activities.

The size of mines vary greatly and not all mines would require all the previously mentioned facilities and equipment. Acreage involved can range from several single acres to several hundred, with most projects disturbing more than 5 acres and requiring an approved Plan of Operations (43 CFR 3809.1-4).

HYPOTHETICAL MINING OPERATIONS

Table C.1 shows three hypothetical mining operations that are somewhat representative of possible future development. These operations were derived from known mines and geologic conditions in the area. They are presented only to illustrate the possible variations in mine operations that could occur, and are not intended to be definitive as to mine size, type, processing, or economics. The data in the table is approximated and is presented to illustrate the variety of factors that are involved when evaluating the feasibility of a mining project.

The first two operations are open-pit, gold-silver mines using a cyanide heap leaching process. Two different sizes are shown, one with one million tons of reserves, and another with 10 million tons of reserves. The ore material is placed on lined leach pads and sprinkled with a dilute cyanide solution which dissolves the gold and silver from the ore. The solution is then recovered and the precious metals extracted using zinc precipitation or carbon adsorption, after which the solution is reused. The life of these projects, from discovery to reclamation, is estimated at nine years, with about six years of metal production.

The third operation shown is a small underground mine with an ore deposit of approximately 200,000 tons. The mining rate is 100 tons per day. Mineral processing would include crushing and grinding, with flotation and/or cyanide leaching in tanks or vats. Tailings from the operation would be placed in a lined impoundment. The project life is estimated at 10 years, from discovery to reclamation. Continued exploration in the area could result in additional reserves and extend the mine life.

PLAN OF OPERATIONS APPROVAL PROCESS

The Montana Department of State Lands (DSL), Hard Rock Reclamation Bureau, is the state permitting authority for hardrock operations in Montana. All Plans of Operations required by BLM are reviewed and approved in coordination with DSL.

Often before submitting a proposed Plan of Operation to BLM, or an Operating Permit Application to DSL, the operator will contact the agencies for guidance on specific information or data that should be included in the application. The application is then filed with both agencies who coordinate staffing needs and agency roles for permit review.

Upon receipt the application is reviewed for completeness. A "completeness review" involves identifying any additional data that the operator must provide to allow assessment of impacts, or commitments that must be made by the operator to reduce potential impacts and eliminate unnecessary or undue degradation. Guidance and authorities used during the completeness review process include; FLPMA, RMP, BLM regulations 43 CFR 3809, BLM Reclamation Handbook, and the Montana Cyanide Management Plan. The deficiencies identified during a completeness review are provided to the applicant within 30 days. The applicant then revises their operating plan as appropriate and resubmits it to the agencies for another completeness review. The cycle of completeness review by the agencies, with subsequent modification of the operating plan by the applicant, continues until the application is declared "complete". It is during this process that many mitigating measures get built into the mine plan.

After a complete application is received the environmental analysis is prepared in accordance with both MEPA and NEPA requirements. Depending on the anticipated impacts of the proposal this may be either an EA or an EIS. Typically (but not always) three alternatives are analyzed in the document: the operator's proposal, the operator's proposal with additional agency imposed modifications (usually the preferred alternative), and the no action alternative.

Public comment may be solicited at any time during the process. A public comment period is provided after release of the environmental document. This may vary from as little as 15 days, to more than 90 days, depending on the issues and

interest. Public meetings for scoping and/or comment are held as appropriate.

After the environmental analysis is complete, and the public comments have been considered, the agencies make an approval decision. Conformance with the modified mining and reclamation plans, plus any additional mitigating measures, are conditions of approval.

A reclamation bond amount is calculated based on an engineering evaluation of what it would cost the agencies to reclaim the operation per the approved reclamation plan. The bond must be posted before on the ground disturbance can begin.

Amendments to existing Operating Permits, or Plans of Operations, are processed in a similar manner.

TABLE C.1
HYPOTHETICAL MINING OPERATIONS

	Open Pit #1	Open Pit #2	Underground
Capital Investment Mine	\$6,000,000	\$18,000,000	\$2,300,000
Capital Investment Mill	1,500,000	5,500,000	2,300,000
Total Capital Investment	\$7,500,000	\$23,500,000	\$4,600,000
Reserves (Tons)	1,000,000	10,000,000	200,000
Tons/day	1,000	10,000	100
Grade Au	0.06	0.03	0.35
Grade Ag	0.25	0.15	5.00
Recovery Au	0.70	0.70	85
Recovery Ag	0.40	0.40	0.80
Mine Production Years	4.00	4.00	8.00
Metal Production Years	6.00	6.00	8.00
Days/year operating	270	270	270
Price Au	\$400	\$400	\$400
Price Ag	\$6	\$6	\$6
Operating Costs/Ton Ore	\$7	\$4	\$90
Total Production			
Au (oz)	42,000	210,000	59,500
Ag (oz)	100,000	600,000	800,000
Total Gross Revenue	\$17,400,000	\$87,600,000	\$28,600,000
Average Annual Gross Revenue	\$2,900,000	\$14,600,000	\$3,575,000
Total operate costs	\$7,000,000	\$40,000,000	\$18,000,000
Average Annual Operating Costs	\$1,166,667	\$6,666,667	\$2,250,000
Total Net Revenue	\$10,400,000	\$47,600,000	\$10,600,000
Annual Net Revenue	\$1,733,333 (6 yrs.)	\$7,933,333 (6 yrs)	\$1,325,000 (8 yrs)
Production Employment	25	70	55
Average Annual Wage	\$34,900	\$34,900	\$34,900
Total Annual Wages	\$872,500	\$2,443,000	\$1,919,500
Avg Annual Resource Indemnity Tax	\$14,500	\$73,000	\$17,875
Average Annual Gross Proceeds Tax	\$26,363	\$69,559	\$32,499
Average Annual Metal Mines License Tax	\$38,160	\$206,640	\$54,164
Average Annual Property Tax	\$101,197	\$169,072	\$54,101
Average Annual Total Taxes	\$180,220	\$518,271	\$158,639
Year 1: development of infrastructure	Year 1: Development work & construction		
Year 2: mining, pad constr., ore loading	Years 2-9: Ore production		
Year 3: ore loading, first Au/Ag production	Year 10: Reclamation		
Year 4: ore loading, Au/Ag production			
Year 5: ore loading, Au/Ag production			
Year 6: leaching, Au/Ag production			
Year 7: leaching, Au/Ag production			
Year 8: leaching, Au/Ag production			
Year 9: Reclamation			

Source: BLM, 1990

CURRENT ACTIVITIES

For additional information on current activity see Chapter 3. The number of mining claims in the planning area is given in Table 3.2 in Chapter 3. These numbers include claims located for bentonite. However, bentonite exploration and development is not discussed in this appendix.

It is important to note that while there are over 3,000 mining claims located in the planning area only a small portion (about 10%) of these claims will have any activity above the prospecting level. Many claims are adjacent to known mineralized areas and serve to secure the property from potential rivals. Many of the claims overlap and might cover the same portion of ground. Often blocks of claims are located to serve as a basis for exploration projects. These blocks will naturally cover more area than the initial geology indicates is warranted so as to provide room for possible expansion should the mineral prospects be favorable.

Current Exploration Activity

Little Rocky Mountains

There are currently 12 active exploration projects in the immediate area of the Little Rocky Mountains. Some of these projects are connected with efforts to expand ore reserves for the Zortman and Landusky gold-silver mines. Recently two additional exploration projects were conducted just south of the Little Rocky Mountains in the Thornhill Butte area for precious metals. South of the Little Rocky Mountains there has been prospecting and minor exploration work for diamonds and industrial abrasives, on the diatremes that extend from Thornhill Butte to the Missouri Breaks.

Judith Mountains

There are currently 10 exploration projects active in the Judith Mountains. All are believed to be primarily interested in gold-silver deposits. These projects are in various stages of activity. Several are just proposed and have not initiated on-the-ground disturbances. Others have been reclaimed and are waiting for reclamation bond release. Several are in the process of making a development decision.

North and South Moccasin Mountains

There are two exploration projects active in the North Moccasins. One is adjacent to the active Kendall Mine and would attempt to expand the mines reserves. The other is located away from the mine in the central part of the mountains. In the South Moccasin Mountains BLM records do not show any exploration type disturbance activity being permitted on public lands. There are mining claims located on these lands and several companies are known to be interested in the area. However, activity that is currently taking place is probably limited to mapping, sampling, and survey work, or exploration work on private surface.

Little Belt Mountains

The tracts located in the Yogo Creek area are adjacent the Yogo Sapphire Mine, and have probably been prospected or explored for sapphires fairly recently. Of the BLM lands located along the front of the Little Belt Mountains, from just north of Hughsville east to Yogo Creek, none have any record of permitted exploration activity in recent time. Some level of prospecting activity for precious metals has probably occurred.

Current Mining Activity

Little Rocky Mountains

Mining in the Little Rocky Mountains began in the late 1800s and proceeded intermittently until the 1970s. In 1979 large scale mining began in the Little Rocky Mountains. The ore was found extremely amenable to the cyanide heap leaching process. This is due primarily to the finely disseminated gold particles occurring along natural fractures in the rock, allowing contact between the cyanide and gold without requiring crushing.

The heap leaching process, as used at the Zortman and Landusky mines, involves construction of retaining dikes in

ephemeral drainages, lining the impoundment area with bentonitic shale and PVC, loading mined ore onto the liner, spraying the ore with a weak cyanide solution (0.05%), recovering the gold bearing (pregnant) cyanide solution, and removing the gold from the leachate using either the Merrill Crowe or carbon adsorption method (see Figure C.2).

The current operator of the Zortman and Landusky mines is Zortman Mining Inc., a wholly owned subsidiary of Pegasus Gold Corporation of Spokane, Washington. Production from 1979 to present is approximately 900,000 ounces gold and over two million ounces silver, with over 140 million tons of ore mined (see Table C.2).

The Zortman mine consists of 8 valley fill leach pads containing an estimated 20 million tons of ore grading 0.028 opt gold and 0.171 opt silver. Total disturbed acres at the Zortman mine is calculated at approximately 450 acres; about 25% of which is on BLM managed lands.

The Landusky mine consists of 9 valley fill leach pads containing over 120 million tons of ore. One leach pad, constructed in 1987 contains some 40 million tons of ore. Another leach pad to be completed in the next 2 to 3 years will contain 50 million tons of ore. The average ore grade at Landusky is slightly lower than Zortman. Mined ore to date averages 0.022 opt gold and 0.125 opt silver. Total disturbed area at the Landusky mine is calculated at approximately 810 acres; over two-thirds of which occurs on BLM managed lands.

TABLE C.2
LITTLE ROCKIES MINING DISTRICT

Estimated Gold and Silver Production in Troy Ounces

Time Period	Placer Gold	Vein Gold	Vein Silver	Disseminated Deposits Gold	Disseminated Deposits Silver
1860-1905	N/A	N/A	N/A	N/A	N/A
1893-1908	N/A	47,500	N/A	N/A	N/A
1908-1923	N/A	189,500	N/A	N/A	N/A
1928-1948	326	N/A	N/A	N/A	N/A
1924-1942	N/A	123,000	N/A	N/A	N/A
1946-1977	N/A	20,000	est; 1,500,000	10,500	est; 25,000
1979-1987	-	-	-	543,900	1,214,600
1988	-	-	-	111,100	247,400
1989	-	-	-	106,400	223,800
1990	-	-	-	109,600	652,170
Total	326	380,000	1,500,000	881,500	2,362,970

Total Gold Produced: 1,261,826 Troy Oz. *Total Gold Value (current \$): \$504,730,400
Total Silver Produced: 3,862,970 Troy Oz. *Total Silver Value (current \$): \$23,177,820

N/A: Not Available

* Assumes Gold @ \$400/Tr.Oz. & Silver @ \$6/Tr.Oz.

Source: Table Modified from Krohn and Weist, 1977; & Rogers and Enders, 1982.
Zortman Mining, Inc., 1991

Judith Mountains

Active mining in the Judith Mountains currently consists of the Gies Mine in the upper reaches of Ford's Creek operated by Blue Range Mining Company. Other mines in the Judith Mountains are either temporarily abandoned, or in the early development and permitting phase.

North and South Moccasins

The Kendall Mine, in the North Moccasin Mountains, is an open pit, cyanide heap leach, gold and silver operation recently permitted in the historic Kendall mining district. Approximately 12 million tons of ore will be heap leached in the next 8 years.

The flowchart illustrates the zinc extraction process, starting with 'Trucks From Pit' and 'Water'. The process involves several stages: 'Crushing/Agglomerating', 'Leaching Pad', 'Carbon Adsorption Columns', 'Carbon Strip Vessel', 'Carbon Reactivation Kiln', 'Barren Pond', 'Electrowinning Cells', 'Zinc Filter Press', 'Refinery', and finally 'Dore Bullion'. Key chemical inputs are 'Sodium Cyanide' and 'Caustic Soda' at multiple points, and a 'Zinc Feeder' is shown between the Vacuum Tower and the Zinc Filter Press.

Little Belt Mountains

Sapphire mining in the Yogo Gulch area is conducted intermittently by Roncor Inc. This property is currently under litigation but is continuing operations on a small limited basis.

FUTURE TRENDS and ASSUMPTIONS

This section discusses anticipated future trends and assumptions that will be made when predicting future hardrock activity in the planning area.

Commodities Produced

The major commodity of interest will continue to be the precious metals, gold and silver. This is based on a combination of price (especially gold), and favorable geology for mineral occurrence.

Minor base metal production will occur in association with precious metals but is not expected to be a significant factor in mine economics (this assumption does not include development of the metalliferous Heath oil shale for two reasons: one it's low development potential, and two, it is not a hardrock mineral occurrence within the meaning of this study).

Sapphires from the Yogo area will continue to be a commodity of interest. The diatreme structures in Phillips County will continue to attract the interest of explorationists searching for diamond occurrences and other possible associated mineralization.

Technology

Advances in technology will have a substantial affect on future mineral exploration and development. Advances in geophysical and geochemical survey methods and procedures will take place at a rapid rate. Computerization of exploration data will increase with more sophisticated geologic modeling methods being available to the average user. Large advances in satellite imagery, and utilization of remote sensing data, will be made as more and better equipment are placed into orbit. The effect of these advances will be a more accurate and rapid evaluation of regional and local areas with better discrimination of target areas, and a more accurate assessment of the deposits potential.

Mining and mineral processing efficiency will continue to improve in the future. This is due to advances in general technology being made available to the mining industry. A large amount of knowledge will continue to be gained with experience. This is especially true in the area of heap leaching technology which is barely two decades old. A large amount of metallurgical research is currently being done both by industry, and government agencies, such as the federal and state bureau of mines. The results are expected to improve leaching efficiency and recovery rates; and develop methods for recovery from ores that are currently not amenable to leaching.

Reclamation has come of age in the last 15 years in response to growing environmental concern among the public. Reclamation science will continue to advance due to experience and research. More detailed design effort will be placed on reclamation of mined lands in the future. This will result in an overall increase in reclamation costs. These costs should pay dividends in the long-term with increased reclamation success.

Commodity Markets

The economics of mining in the planning area will be driven by the relationship between gold production costs and market price. Though more silver is often produced than gold it is the relatively high unit value of gold that will be critical in establishing the economic viability of mining. While production costs can be controlled, or anticipated, through management and technology, the big unknown will be in the price of gold. The overall profitability of an operation, and hence the level of activity at the prospecting, exploration, and mining phases, for development of gold ore bodies will be closely related to the price of gold.

The price of gold and silver has varied considerably in the past (see Table C.3 and Figure C.3). This is due to the deregulation of government price controls letting the commodities adjust to their true market values.

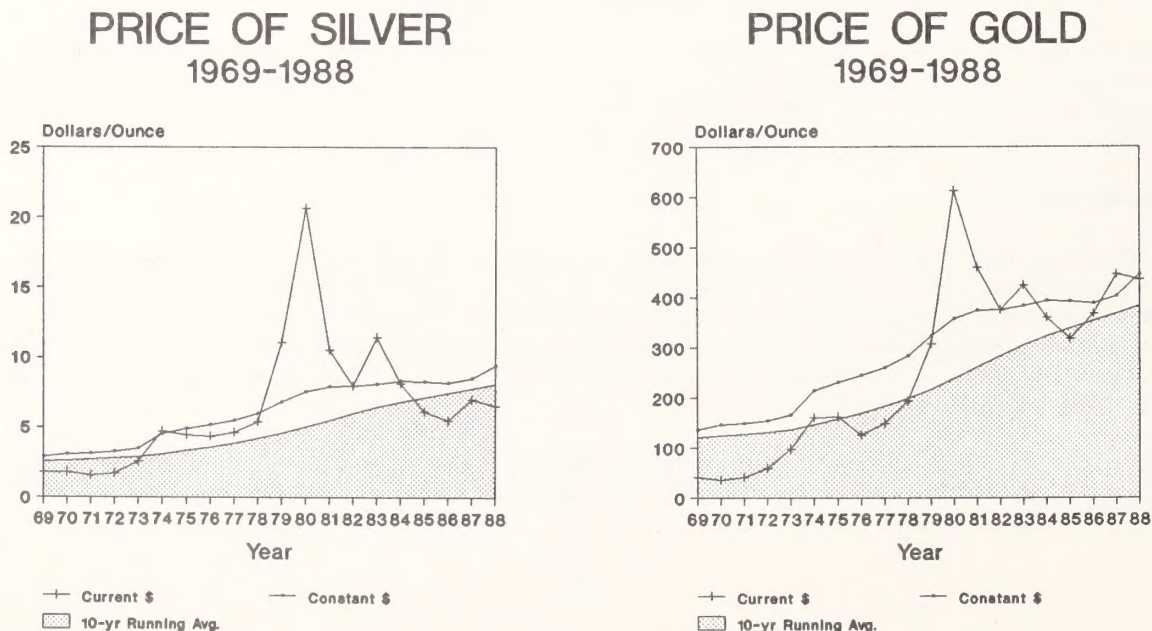
TABLE C.3
GOLD AND SILVER PRICES

Year	PPI* (Metals)	Gold Prices 1960 - 1988			Year	Silver Prices 1960 - 1988		
		Gold (Cur \$)	Gold (Con \$)	10-yr Avg.		Silver (Cur \$)	Silver (Con \$)	10-yr Avg.
1960	0.306	35.00	115.06		1960	0.91	2.43	
1961	0.305	35.00	114.68		1961	0.91	2.42	
1962	0.302	35.00	113.56		1962	1.09	2.40	
1963	0.303	35.00	113.93		1963	1.28	2.41	
1964	0.311	35.00	116.94		1964	1.29	2.47	
1965	0.320	35.00	120.32		1965	1.29	2.54	
1966	0.328	35.00	123.33		1966	1.29	2.61	
1967	0.332	35.00	124.84		1967	1.55	2.64	
1968	0.340	41.39	127.84		1968	2.15	2.70	
1969	0.360	41.30	135.36	120.59	1969	1.79	2.86	2.55
1970	0.387	36.18	145.52	123.63	1970	1.77	3.08	2.61
1971	0.394	41.01	148.15	126.98	1971	1.55	3.13	2.68
1972	0.409	58.40	153.79	131.00	1972	1.68	3.25	2.77
1973	0.440	97.60	165.44	136.15	1973	2.56	3.50	2.88
1974	0.570	160.01	214.33	145.89	1974	4.71	4.53	3.08
1975	0.615	161.21	231.25	156.98	1975	4.42	4.89	3.32
1976	0.650	125.34	244.41	169.09	1976	4.35	5.17	3.57
1977	0.693	148.32	260.57	182.67	1977	4.62	5.51	3.86
1978	0.753	193.53	283.14	198.19	1978	5.42	5.98	4.19
1979	0.860	307.62	323.37	217.00	1979	11.09	6.83	4.59
1980	0.950	612.51	357.21	238.16	1980	20.63	7.55	5.03
1981	0.996	459.62	374.51	260.80	1981	10.52	7.92	5.51
1982	1.000	376.01	376.01	283.02	1982	7.95	7.95	5.98
1983	1.018	423.83	382.78	304.76	1983	11.44	8.09	6.44
1984	1.048	360.29	394.06	322.73	1984	8.14	8.33	6.82
1985	1.044	317.30	392.55	338.86	1985	6.14	8.30	7.16
1986	1.032	367.84	388.04	353.22	1986	5.47	8.20	7.47
1987	1.071	446.41	402.71	367.44	1987	7.00	8.51	7.77
1988	1.187	436.07	446.32	383.76	1988	6.56	9.43	8.11
1989	--	382.69			1989	5.55		

* Producer Price Indexes from Statistical Abstract of United States 1989

Source: Gold and silver prices from EM&J (Handy & Harmon, NY)

Figure C.3 Price of Gold and Silver.



Source: Gold and silver prices from EM&J (Handy & Harmon, NY)

The supply and demand for gold, and ultimately the price, are determined by many factors. On the supply side, production costs must be lower than price for firms to earn a profit. Relatively low-grade deposits, which were previously uneconomical to mine, have become profitable resources to develop due to the emergence of new production techniques in the past 15 years. Thus supply has been increasing while the relative cost of production generally has declined. However, the profitability of these mining processes has increased the number of suppliers worldwide and made the market more competitive.

The demand for gold, primarily for jewelry/investment purposes, has been increasing over the same time period. Factors influencing the demand for gold, both nationally and internationally, include the growth of disposable income, inflationary expectations, international stock market activity, the value of the US dollar relative to other currencies, and political events such as increased instability in Eastern Europe and the Middle East. Thus the demand for gold is volatile and difficult to predict with any certainty.

There are several issues which will most likely contribute to strong gold prices in the 1990s, though to what extent is unknown. First, the evolution toward more democratic rule in Eastern Bloc countries will likely play a role both in future demand and supply. Additionally, the creation of a unified European Community in 1992 that eliminates trade barriers between western European countries may also play a part. "Finally, the growth in the eastern European markets and speculation about a new monetary role for Soviet supplied gold will help stimulate a bull market." (E&MJ, March 1990).

The increasing price trend shown in Table C.3 is expected to continue, but at a slower pace. For the purposes of the analysis the price of gold is assumed to remain near, or somewhat above, about \$400 per troy ounce in 1990 dollars. Silver is assumed to remain between \$5 and \$7 per troy ounce in 1990 dollars.

Legislative Changes

There are several areas of legislative change that may affect how the hardrock mineral resources in the planning area are developed.

The first is the on going effort to amend, repeal, or reform the Mining Law of 1872. This could result in anything from simply leaving it as is, to a complete restructuring into a leasing/royalty system similar to that now used for coal or oil and gas. The effect of major changes in the mining law on mineral activity would be a decrease in the amount of exploration activity undertaken by small operators if the right of self initialization is lost. Another perhaps more extensive affect would be a decrease in the ultimate number and size of mines that could be developed. This is because a royalty on mineral production would generate a corresponding increase in operating costs which in turn would raise the cut-off ore grade making some currently economic deposits uneconomic, or reducing the size or minable depth of other deposits.

Changes in the way mining property and production is taxed could also have a substantial effect on the viability of individual operations. No changes in state tax schedules are anticipated. No federal royalty is assumed in this analysis.

Another area of possible legislative change is in environmental laws or regulations which would affect exploration and mining activity. There is an increased level of public awareness on environmental matters which is expected to continue into the future. This will result in stricter compliance and enforcement of existing regulations by state and federal agencies. New regulations are proposed by EPA that would regulate mining wastes under Subtitle D of the Resource Conservation and Recovery Act (RCRA). This new program is expected to go into effect sometime in the mid 1990s. This would increase mine permitting costs and operation. It also may cause some marginal operations to become uneconomic.

For purposes of analysis it is assumed that the mining law could be changed, but the right of self initialization will be maintained, and there will be no federal royalty system imposed. It is also assumed that permitting procedures and compliance requirements will be stricter in the future. State taxation schedules will remain constant.

DEVELOPMENT AND ACTIVITY POTENTIAL

Supplemental Color Maps J, K and L at the conclusion of the Appendices shows the development potential for hardrock mineral resources in the Little Rocky Mountains, Judith and Moccasin Mountains, Little Belt Mountains and Yogo Gulch

Area. The areas are classified into four categories for development potential: very low, low, moderate, and high. The term development potential as used in this document refers to the potential of the lands to support actual mine development. It is dependent on a variety of factors which include geology, engineering, and economics. It should not be confused with occurrence potential which indicates only whether the geology is favorable for mineral occurrence in anomalous amounts. All of the lands in the moderate and high development potential areas have high occurrence potential for hardrock mineral resources.

The development potential of these lands can be correlated with the types of activity and mine life cycle diagram Figure C.1 and discussed under Development Of A Mine. A description of development potential and associated level of activity follows.

Very Low or Unknown Development Potential/Reconnaissance Level Activity

The vast majority of lands in the planning area are in this category and have either little, or unknown potential, for hardrock mineral development. Geologic conditions are not favorable for mineral occurrence, or geologic data is insufficient to support a determination. Activities that will occur on these lands is at the reconnaissance level as described under: Development Of A Mine-Reconnaissance. There is usually negligible surface disturbance associated with this level of activity.

Low Development Potential/Prospecting Level Activity

Lands in this category have geologic conditions moderately favorable for mineral resource occurrence, or have recent claim staking or property acquisition activities. These lands may contain mineral resources but cannot be put into a moderate or high development potential category due to lack of evidence indicating mineralization, in either quality or quantity, that would warrant further consideration for development. Prospecting activities will occur on these lands as described under: Development Of A Mine-Prospecting. If prospecting identifies sufficiently anomalous mineral conditions these lands move into the moderate development potential category.

Moderate Development Potential/Exploration Level Activity

Lands in this category exceed the requirements for Low Development Potential by having recent or anticipated exploration activity and/or a prospect identified requiring more intense exploration methods. These lands have high to very high mineral occurrence potential. Activities that will occur on these lands can involve use of mechanized earthmoving equipment and is described under: Development Of A Mine-Exploration. Targets typically remain in this category only briefly. If an exploration program is unsuccessful the lands drop back to the prospecting level until a new prospect is generated or economic conditions change. If an exploration program is successful further exploration will follow, and the lands may eventually be placed in a high development potential category.

High Development Potential/Mining Level Activity

Lands in this category exceed the requirements for moderate development potential and contain proven, probable or inferred ore reserves and/or are within, or potential additions to, the permit area of a proposed or operating mine. Activities that will occur on these lands are described under: Development Of A Mine-Mine Development and can vary greatly in type and size.

Once an ore body has been recovered from a property final reclamation is completed; or the property is placed on standby, awaiting changes in technology or economic conditions, that may allow for further development.

FUTURE ACTIVITY

Exploration Projections

This section estimates the number of exploration projects that could occur in specific geographic areas.

Little Rocky Mountains

In the foreseeable future 40 exploration projects are anticipated for the Little Rocky Mountains and surrounding area. These projects would consist of road building and drilling similar to that performed in the past. The activity would not all occur simultaneously. At any one time an estimated 10 to 12 projects will be in one of the following stages: initial evaluation, actual construction and drilling, held open for study, or in the reclamation phase. Average disturbance would be less than 5 acres per project. This would amount to a total disturbance of about 200 additional acres due to exploration in the Little Rocky Mountains. The intent of exploration will vary: to evaluate new mineral prospects identified by surface study, to expand resource delineation on existing projects, and to expand reserve delineation adjacent to the existing mines.

It is estimated that 85% of the exploration activity would occur within the high and moderate development potential areas shown in Supplemental Color Map J located at the conclusion of the Appendices. The remaining 15% could occur in the area having low development potential.

Judith Mountains

In the foreseeable future 40 exploration projects are anticipated for the Judith Mountains. These projects would consist of road building and drilling similar to that performed in the past. Several would involve driving of exploration adits in new or existing underground workings. The activity would not all occur simultaneously. At any one time an estimated 8 to 10 projects will be in one of the following stages: initial evaluation, actual construction and drilling, held open for study, or in the reclamation phase. Average disturbance would be less than 5 acres per project. This would amount to a total additional disturbance of about 200 acres due to exploration in the Judith Mountains. The intent of exploration will vary: to evaluate new mineral prospects identified by surface study, to expand resource delineation on existing projects, and to expand reserve delineation adjacent to the existing mines.

It is estimated that 85% of the exploration activity would occur within the high and moderate development potential areas shown in Supplemental Color Map K located at the conclusion of the Appendices. The remaining 15% could occur in the area having low development potential.

North and South Moccasins

Twenty future exploration projects are anticipated for the North and South Moccasin Mountains. The majority of the activity is expected to be concentrated in the North Moccasins, though it is expected at least several fairly intense exploration projects would be targeted in the South Moccasins. The projects would consist of road building and drilling similar to that performed in the past. The activity would not all occur simultaneously. At any one time an estimated 5 projects would be in one of the following stages: initial evaluation, actual construction and drilling, held open for study, or in the reclamation phase. Average disturbance would be less than 5 acres per project. This would amount to an additional disturbance of about 100 acres due to exploration. The goal of the activity will vary: to evaluate new mineral prospects identified by surface study, to expand resource delineation on existing projects, and to expand reserve delineation adjacent to the existing Kendall Mine.

It is estimated that 80% of the exploration activity would occur within the high and moderate development potential areas shown in Supplemental Color Map K located at the conclusion of the Appendices. The remaining 20% could occur in the area having low development potential.

Little Belt Mountains

About 10 exploration projects are anticipated for the BLM lands adjacent the Little Belt Mountains. Most of the activity will be concentrated in the Yogo Gulch area, trying to expand the known occurrence area of sapphires. Other exploration for metal deposits is anticipated on the tract north of Hughsville. These projects would consist of road building and drilling to evaluate metal potential of the several tracts along the front of the mountains. Other projects would use earthmoving equipment such as bulldozers or backhoes to explore the area near the sapphire mines for additional reserves. This activity would not all occur simultaneously. At any one time an estimated 2 to 4 projects would be in one of the following stages: initial evaluation, actual construction and drilling, held open for study, or in the reclamation phase. Average disturbance would be less than 5 acres per project. This would amount to a total additional

disturbance of about 50 acres due to exploration in the area. The intent of the exploration will vary: to evaluate new mineral prospects identified by surface study, to expand resource delineation on existing projects, and to expand reserve delineation adjacent to the existing mines.

It is estimated that 80% of the exploration activity would occur within the high and moderate development potential areas shown in Supplemental Color Map L located at the conclusion of the Appendices. The remaining 20% could occur in the area having low development potential.

Mining Projections

This section projects the number of mines that could be expected to develop as a result of prospecting and exploration activity. It includes expansion of existing mines, development of known resource occurrences, and development of as yet undiscovered ore bodies. The hypothetical mine types shown in Table C.1 could be applicable when considering development of new deposits.

Little Rocky Mountains

Future mining projections include development of the mineralized sulphide (nonoxidized) ore underlying the currently mined oxide ore at both the Zortman and Landusky operations. This could require a change in operation by addition of a crushing and grinding circuit, processing of ore using flotation cells and agitation leach tanks, and disposal of mill tailings in impoundments. The existing heap leach facilities would also be greatly expanded as the majority of the sulphide material would be heap leached in a manner similar to that used for the oxidized ore.

Foreseeable development at the Zortman and Landusky operations would occur in the same general area as the existing mines. Long-term development of the unoxidized mineral resources would occur in two stages. The Zortman Mine would be expanded first, followed in 2 to 5 years by expansion at the Landusky Mine. These expansions could extend the mine-life of the projects by 20 years (Zortman Mining, 1990).

The existing mine pits would be expanded and deepened. Additional drilling is needed to determine ultimate reserves and pit limits. As a result of mining the unoxidized ore, additional, interspersed, oxide ore would also be mined. Mine production would be at about 50,000 tons/day for 350 days per year and employ the same mining techniques presently in use.

If unoxidized ore were to be milled it would be crushed to minus 5-8" and screened. Oversized screen material would be crushed again to minus 1/2" and heap leached. Fines would be fed to a mill and ground to 80% minus 150 mesh, then sent to a flotation circuit. In the flotation circuit chemicals are added that allow selective attachment of air bubbles to the unoxidized minerals in the ore slurry. The bubbles, with the minerals attached, rise to the top of the flotation cell and are collected as concentrate. This concentrate would either be sold directly to the smelter, or undergo further processing (oxidation) to allow on site recovery of the gold. The tailings from the flotation section would proceed to standard cyanide agitation leach tanks for recovery of residual gold values. The tailings from the agitated leach circuit would require placement in a tailings impoundment.(Zortman Mining, 1990)

The addition of a mill would require an increase of workforce of less than 50 workers (Zortman Mining, 1990). Presumably if the two mills were to operate simultaneously an additional 100 employees may be required.

Zortman Operation

Several leach pad sites would be required to contain anticipated ore. A capacity of 80 to 110 million tons is estimated. This would cover about 160 to 280 acres. A tailings impoundment would be needed to contain the tails from the agitation leach circuit. This would cover about 100 acres. A new plant/mill facility would be constructed on about 30 acres. Waste rock storage for 60 million tons of material over about 130 acres is necessary. Expansion of this mine would also involve construction of process ponds, ore conveyors, pipelines, access roads, and maintenance facilities.

Two additional oxide ore bodies in the Zortman Mine area have been identified for possible development in conjunction with the nonoxidized ore. Development of the Antoine Butte deposit could take place in approximately 5 years. This deposit occurs in fractured porphyry intrusive and Precambrian gneiss. Some 6 to 8 million tons of potentially minable

material has been identified in this area. In the Pony Gulch area 1.5 to 2 million tons of potentially minable material has been identified in the Paleozoic limestones (Zortman Mining, 1990).

Landusky Operation

Additional leach pad capability would be required to contain anticipated ore at the Landusky Mine. A capacity of about 40 million tons is needed, with additional area dependent on development drilling. This would cover about 100 to 150 acres. A tailings impoundment would be needed to contain the tails from the agitation leach circuit. This would cover about 50 acres. A new plant/mill facility would be constructed in the West August pit area. Waste rock storage for 30 million tons of material over about 95 acres is also necessary. Expansion of this mine would also involve construction of process ponds, ore conveyors, pipelines, access roads, and maintenance facilities.

There is also potential for the discovery of new ore bodies in the Little Rocky Mountains, apart from the existing mines, that would require new development facilities. Assuming a fairly optimistic success rate of 10% for the anticipated 40 exploration projects would result in development of 4 new ore bodies, two adjacent existing operations and two somewhere in the Little Rocky Mountains vicinity. These deposits would most likely all be developed by open-pit mining methods.

The future for mining in the Little Rocky Mountains is shown in Table C.4.

TABLE C.4
FUTURE MINING IN THE LITTLE ROCKY MOUNTAINS

Continued existing mines	2	Zortman & Landusky mines
Sulphide ore development	2	Zortman & Landusky mines
Known oxide development	2	Antoine Butte & Pony Glch
New oxide ore discoveries	2	Adjacent existing mines
New ore discoveries	2	Beyond current mine areas
Total	10	Expanded or newly developed ore bodies

Source: BLM, 1990

It should be noted that of the 10 mining projects anticipated during the study period only two are expected to occur beyond the currently active mining areas. The other 8 represent continued or expanded operation near the Zortman and Landusky mines.

It is expected that 80% of the future mine development listed in Table C.4 would take place within the area shown in Supplemental Color Map J (located at the conclusion of the Appendices) as having high development potential. The remaining 20% of new development would be expected to occur somewhere in that area having moderate development potential. Mine development in the areas identified as low development potential could still occur, but would not be very probable.

Judith Mountains

Mining in the Judith Mountains will expand in the future. Ongoing underground precious metal mining will resume at the Spotted Horse Mine in Maiden Canyon, and the Gies Mine in upper Ford's Creek. Other mining projects expected to be brought into production soon are Blue Range's Virgin Gulch Mine in the Giltedge area, and the AMAX Linster Peak project.

Blue Range Mining Company operated two mines and a mill in the area. The Gies Mine is a 150 tpd underground gold and silver mine that employs about 36 people. The ore is shipped to the mill located at Heath for processing. The Virgin Gulch Mine is a 250 tpd underground gold and silver mine that is not yet in full operation pending permit approval. This mine would employ 17 people. Ore from this mine would also be shipped to the mill at Heath for processing. A cyanide circuit was added to improve recovery. Tailings from the Heath mill are disposed of in the old underground workings of the adjacent gypsum mine. This mill will employ 20 people (Blue Range Mining Co.LP, 1989). These operations are currently suspended but are expected to reopen in the future and will rely on continued exploration to maintain ore reserves.

In the historic Giltedge area mining is expected to resume with additional open pit development.

The Spotted Horse Mine has a history of operating on an intermittent basis. It is currently shut-down due to financial difficulties. During its last period of operation the mine was to produce 50 tpd (actual production may have been lower) of gold and silver ore. The mine employed approximately 58 people (Chelsea Resources, 1988). It is expected that this operation will restart in the future, and perhaps exceed past production levels.

The Linster Peak project is in an area that has seen historic mining activity. Recent exploration has outlined an ore body that is a likely target for underground mining. This project is expected to be developed, probably within 1 to 2 years. The ultimate size and life of the mine is not known, and is dependent on further exploration. The mine would probably be in the 100 tpd range, and employ more than 50 people.

Additional mining projects that could be generated from exploration activity would also occur. Based on a fairly optimistic success rate of 10% for the anticipated 40 exploration projects, four new ore bodies would be identified. Of the four future discoveries one, and possibly two, would require open pit mining methods for development. The future for mining in the Judith Mountains is therefore anticipated as shown in Table C.5.

TABLE C.5
FUTURE MINING IN THE JUDITH MOUNTAINS

1	Gies Mine, reopen underground
1	Spotted Horse Mine, reopen, underground
1	Giltedge, reopen, open-pit
1	Virgin Gulch, new underground
1	Linster Peak, new underground
4	Future unknown mines from discoveries (2 open-pit, 2 underground)
Total 9	Developed ore bodies.

Source: BLM, 1990

The nine development projects anticipated do not include the Heath mill. This mill is expected to operate in conjunction with mining by the Blue Range Mining Company and could be used as a custom mill for ore mined from other properties in the area.

It is expected that 80% of the mine development listed in Table C.5 would take place within the area shown in Supplemental Color Map J (located at the conclusion of the Appendices) as having high development potential. The remaining 20% would be expected to occur somewhere in that area having moderate development potential. Mine development in the areas identified as low development potential could still occur, but would not be very probable. Activity in the low development potential areas would most likely remain at the exploration level.

North and South Moccasin Mountains

Mining at the Kendall mine in the North Moccasins is expected to continue throughout the study period. The recently approved Plan of Operations for the mine was a comprehensive life-of-mine plan representing optimum geologic and economic conditions. The mine plan should not require major modification for 5 to 8 years unless conditions change considerably. Some very tentative production estimates supplied by CR Kendall, the mine operator, are as shown in Table C.6.

TABLE C.6
PRODUCTION ESTIMATES FOR THE KENDALL MINE

<u>Year(s)</u>	<u>Gold (tr.oz.)</u>	<u>Silver (tr.oz.)</u>
1981-87(total)	5,000	5,000
1988	4,350	11,500
1989	30,000	23,000
1990	34,000	34,000
1991-97 (annual)	50,000	25,000
1998-2000 (annual)	15,000	7,500
2001-2005 (annual)	5,000	2,500

Source: CR Kendall, 1992

There is also the potential for the discovery of new ore bodies in the North and South Moccasins. If an optimistic success rate of 10% is assumed for the anticipated 20 exploration projects then two new ore bodies would be discovered and developed. These two new projects can be hypothetically located with one occurring in the North Moccasins, and another in the South Moccasins. This development would most likely take place in the areas identified in Supplemental Color Map J (located at the conclusion of the Appendices) as having high or moderate development potential. These deposits would probably require open pit mining methods for development.

Small scale placer work on the west side of the North Moccasins is expected to continue on an intermittent basis during the study period. No major change in operation is anticipated for these deposits.

Little Belt Mountains

Sapphire mining in the Yogo Creek area of the Little Belt Mountains is expected to continue on an intermittent basis throughout the study period. If an optimistic success rate of 10% is assumed for the anticipated 10 exploration projects then one new ore body would be discovered and developed. This would probably expand the area of mining in the gulch along the trend of the yogo dike, to the east. No mining activity is anticipated for the BLM tract north of Hughesville, and the tract in Running Wolf Creek (see Supplemental Color Map K located at the conclusion of the Appendices). Activity on these lands is expected to be at the exploration level.

VARIATION BY ALTERNATIVE

The previous projections of exploration and development activity were based on the current management of the planning area or Alternative A. This section shows the variation in number and type of exploration and mining projects that are anticipated under each of the other alternatives and how those differ from that under current management.

Alternative B

The activity levels that are predicted under Alternative B are essentially the same as would occur under Alternative A (see Table C.7).

TABLE C.7
PROJECTIONS OF EXPLORATION AND DEVELOPMENT ACTIVITY

	Alt. B	Alt. C	Alt. D	Alt. E
Little Rocky Mountains				
Exploration projects	40	40	16	40
Existing open pit operations (Zortman & Landusky Mines)	2	2	2	2
New sulphide ore developments, open pit	2	2	2	2
Known oxide ore developments (Antoine Butte & Pony Gulch)	2	2	2	2
New oxide open pit discoveries near existing mines	2	2	1	2
New unknown discoveries, open pit, new areas	2	2	1	2
Judith Mountains				
Exploration projects	40	30	7	35
Gies Mine with Heath Mill, reopen underground	1	1	1	1
Spotted Horse Mine, Reopen, underground	1	1	1	1
Giltedge, reopen, open-pit	1	1	1	1
Virgin Gulch, new underground development	1	1	1	1
Linster Peak, new underground development	1	1	1	1
Future unknown mines from discoveries (open-pit)	2	1	0	1
Future unknown mines from discoveries (underground)	2	1	0	2
North and South Moccasins				
Exploration projects	20	20	10	20
Existing open pit operation (Kendall Mine)	1	1	1	1
Future unknown open-pit mine from discovery in North Moccasins	1	1	1	1
Future unknown open-pit mine from discovery in South Moccasins	1	0	0	1
Little Belt Mountains				
Exploration projects	10	10	10	10
Expand existing sapphire mining operation	1	1	1	1

Source: BLM, 1990

Alternative C

About the same development level as in Alternatives A and B. The general nature of the restrictions would account for timing delays which will slow exploration and mine permitting, and could seriously affect project feasibility (see Table C.7).

Alternative D

This alternative would be the most restrictive on hardrock mineral exploration and development with 60% of the high development potential lands, and 72% of the moderate development potential lands, in the Judith RA closed to mineral entry. In the Phillips RA most of the high development potential areas would remain open, but 36% of the moderate development potential lands would be closed. In the Judith Mountains 97% of high development potential lands withdrawn. 81% of moderate development potential lands withdrawn. Severe impact on existing operations and on any future exploration. In the North and South Moccasins 28% of the moderate development potential lands are withdrawn in the North Moccasins and 77% of the moderate development potential lands are withdrawn in the South Moccasins. All closures would be subject to valid existing rights.

Alternative E (Preferred Alternative)

Key designations include the Judith Mountains Scenic Area ACEC. The general nature of the restrictions would account for timing delays which will slow exploration and mine permitting, and could seriously affect project feasibility. Five exploration projects could possibly be forgone in the Judith Mountains. One potential large scale open-pit mine could possibly be forgone in the Judith Mountains Scenic Area ACEC. (see Table C.7).

APPENDIX D

PHYSIOGRAPHIC PROVINCES AND SOIL SUBGROUPS Soil Subgroup, Major Series and Ecological Site

Soil Subgroup Number:

1. Loamy glacial till soils on glaciated plains. Major series: Bearpaw, Dooley, Hillon, Joplin, Kevin, Phillips, Scobey, Sunburst, Telstad, Vida, Williams, Zahl and Zahill. These series are in a Sandy, Silty, Thin Silty, or Thin Clayey Ecological site. Includes small areas of soil subgroups 2, 3, 4, 6, 7, 9 and 11.
2. Clayey soils on glaciated plains and local terraces. Major series: Elloam, Absher and Thoeny. These series are in a Claypan or Dense Clay Ecological site. Includes small areas of soil subgroups 1, 3, 4, 6, 7 and 9.
3. Clayey acid shale soils on dissected uplands. Major series: Dilts, Julin and Teigen. These series are in a Clayey or Coarse Clay Ecological site. Includes small areas of soil subgroups 4, 5, 12 and 15.
4. Calcareous or bentonitic shale soils on uplands and stream breaks. Major series: Abor, Barkof, Bascovy, Darret, Dimyaw, Lisam, Neldore, Norbert, Thebo, Weingart, Winifred and Yawdim. These series are in a Clayey, Shallow Clay, Shallow, or Claypan Ecological site. Includes small areas of soil subgroup 3 and 15 in shale uplands and 6, 10 and 13 near stream channels.
5. Loamy soils on sedimentary uplands. Major series: Cabba, Cabbart, Cambert, Dast, Delpoint, Doney, Ernem, Lonna, Marmarth, Reeder, Rentsac, Riedel and Twilight. These series are in a Sandy, Silty, or Shallow Ecological site. Includes small areas of soil subgroups 2, 4, 6, 8, 9 and 11.
6. Loamy and clayey alluvial soils on floodplains and low terraces. Major series: Bowdoin, Gesa, Glendive, Hanly, Harlem, Havre, Havrelon, Kiwanis, Korent, Lallie, Lardell, Lohler, Nesda, Rivra, Sudworth, Trembles and the Typic Fluvaquents, Typic Ustifluvents, Aquic Ustifluvents, Fluvaquentic Haploborolls, and Ustic Torrifluvents. These soils are dominantly in an Overflow Ecological site. Small areas are in a Saline Lowland, Sandy, Silty, or Clayey Ecological site. Includes small areas of soil subgroups 8, 9 and 10.
7. Somewhat poorly drained to very poorly drained clayey soils in potholes and level basins subject to ponding. Major series: Dimmick, McKenzie and Nishon. These series are in a wetland or overflow ecological site. This soil subgroup is usually included in subgroups 1, 2 and 10 due to the small size of each area on the map.
8. Moderately coarse and coarse textured soils on terraces, fans and foot slopes. Major series: Assiniboine, Blanchard, Busby, Chinook, Cozberg, Hawkswell, Lihen, Parshall, Tally and Yetull. These series are in a Sands, or Sandy Ecological site. Includes small areas of soil subgroups 5, 6, 9 and 14.
9. Medium textured alluvial soils on terraces, fans and foot slopes. Major series: Attewan, Benz, Bitton, Brockway, Evanston, Farland, Farnuf, Floweree, Judith, Kremlin, Lambeth, Macar, Martinsdale, Redvale, Shawmut, Straw, Turner, Vanstel, Work and Yamac. These series are dominantly in a Silty Ecological site. Benz soils are in Saline Upland. Includes small areas of subgroups 6, 10, 11, 12 and 14.
10. Clayey textured alluvial soils on terraces, fans and foot slopes. Major series: Acel, Cherry, Ethridge, Grail, Kobar, Lawther, Linnet, Lothair, Macar, Marias, Marvan, Pendroy, Richey, Savage and Shaak. These series are dominantly in a Clayey Ecological site. Shaak soils are in Silty. Includes small areas of soil subgroups 6, 9, 11, 12, 13 and 14.
11. Clayey, well drained, salt affected soils on terraces, fans and foot slopes. Major series: Absher and Adger. These series are in a claypan or dense clay ecological site. This soil subgroup is usually included in subgroups 6, 9, 10 and 12 due to small size of areas on soil map.

12. Clayey, moderately well drained, salt affected soils on terraces, fans and foot slopes. Major series: Absher, Adger and Nobe. These series are in a claypan ecological site. Includes small areas of soil subgroups 6, 9, 10, 11 and 13.
13. Clayey, very slowly permeable, salt affected soils on terraces and fans. Major series: Vaeda and Vanda. These series are in a dense clay ecological site. Includes small areas of soil subgroups 6, 11 and 12.
14. Very gravelly, extremely gravelly and cobbly alluvial soils on terraces, fans and foot slopes. Major series: Beaverell, Beaverton, Tinsley, Wabek and Windham. These series are in a shallow to gravel or gravel ecological site. This soil subgroup is included in subgroup 8 or 9 due to the small size of areas on soil map.
15. Loamy and clayey soils on mountains with forest canopy cover. Major series: Arcette, Belain, Cowood, Elve, Gambler, Lolo, Macmeal, Repp, Sicksteets, Silverchief, Trapper, Warneke, Whitecow and Whitore. These series are mostly Grazable Forest land. Includes small areas of soil subgroup 18 and rock outcrop.
16. Shallow and deep clayey soils on dissected shale upland slopes with forest canopy cover. Major series: Bascovy, Dilts, Julin and Neldore. These series are mostly grazable forest land. This subgroup is sometimes included in subgroup 3 or 4 due to the small size of some areas on the soil map.
17. Loamy and clayey alluvial soils on floodplains and along drainages with forest canopy cover of mostly deciduous trees. Major series: Glendive, Harlem, Havre, Havrelon, Kiwanis, Korchea, Korent, Lohler, Nesda, Rivra and Trembles. These series are mostly grazable forest land. This soil subgroup is included in subgroups 1, 6, 9, 10 and 18 due to the small size of areas on the soil map.
18. Loamy and clayey alluvial nonforested soils on fans and foot slopes of mountains and foothills. Major series: Belain, Hedoes and Lolo. These series are in a Silty Ecological site. Included small areas of soil subgroups 15 and 17.
19. Shallow and deep, loamy and loamy-skeletal soils on bedrock ridges and on foot slopes of mountains. Major series: Castner, Cheadle, Libeg, Perma and Warneke. These series are in a silty or shallow ecological site. This soil subgroup is included in subgroups 15 and 18 due to the small size of areas on the soil map.

Four Physiographic Provinces

A. Glaciated Plains and Wet Basins (Soil Subgroups 1, 2 and 7)

1. Loamy glacial till soils on upland plains.
2. Dominantly claypan soils on glacial till uplands and local terraces.
7. Potholes and level basins subject to ponding.

B. Sedimentary Uplands (Soil Subgroups 3, 4, 5, and 16)

3. Clayey acid shale uplands.
4. Calcareous or bentonitic shale uplands.
5. Loamy sedimentary uplands.
16. Dissected clay shale upland slopes with forest canopy cover.

C. Alluvium On Flood Plains, Terraces, Fans, & Foot Slopes (Soil Subgroups 6, 8, 9, 10, 11, 12, 13, 14, and 17)

6. Loamy and clayey alluvial soils on floodplains and low terraces.
8. Moderately coarse and coarse textured soils on terraces, fans and foot slopes.
9. Medium textured alluvial soils on terraces, fans and foot slopes.
10. Clayey textured alluvial soils on terraces, fans and foot slopes.
11. Dominantly, well drained, claypan and dense clay soils on terraces, fans and foot slopes.

12. Dominantly, moderately well drained, claypan alluvial soils on terraces and fans and foot slopes.
13. Very slowly permeable clay alluvial soils of terraces and fans.
14. Very gravelly, extremely gravelly and cobbly alluvial soils on terraces, fans and foot slopes.
17. Loamy and clayey alluvial soils on floodplains and along drainages with more than 10% canopy cover of deciduous trees.

D. Mountains and Foothills (Soil Subgroups 15, 18, 19)

15. Loamy and clayey soils in mountainous areas with forest canopy cover.
18. Loamy and clayey alluvial nonforested soils on fans and foot slopes of mountains and foothills.
19. Shallow to deep, loamy and loamy-skeletal soils on bedrock ridges and on foot slopes of mountains.

Sources: Published and unpublished Soil Conservation Service soil survey reports for Fergus, Petroleum, Judith Basin, Chouteau, Valley and Phillips Counties. Prairie Potholes EIS, March 1981.

APPENDIX E

BEST MANAGEMENT PRACTICES

A. Roads

1. Location

- a. Minimize the number of roads constructed in a watershed through comprehensive road planning, recognizing intermingled ownership and foreseeable future uses. Use existing roads where practical.
- b. Fit the road to the topography. Locate roads on natural benches and stable soil types to minimize the area of road disturbance.
- c. Locate roads on well drained soils and rock formations that tend to dip into the slope. Avoid slide-prone areas characterized by seeps, steep slopes, highly weathered bedrock, clay beds, concave slopes, hummocky topography, and rock layers that dip parallel to the slope.
- d. Avoid high erosion hazard sites, such as steep narrow canyons, slide areas, slumps, swamps, wet meadows, or natural drainage channels. Where there is potential for material to enter a stream, obtain approval of the Conservation District and/or the Water Quality Bureau under applicable laws (i.e., 124 permit by BLM or a 310 permit by a private contractor).
- e. Locate roads a safe distance from streams when roads are running parallel to stream channels. Provide an adequate streamside management zone in order to catch sediment and prevent its entry in to the stream.
- f. Minimize the number of stream crossings.
- g. Cross streams at right angles to the main channel if practical.
- h. Choose a stable stream crossing site and adjust the road grade to reach the site if possible.
- i. Avoid unimproved stream crossings. Where a culvert or bridge is not feasible, locate drive-throughs on a stable, rocky portion of the stream channel.
- j. A 124 permit by BLM or a 310 permit by a private contractor (Natural Streambed and Land Preservation Act of 1975) is required before disturbance is allowed within the area between the normal high water mark of perennial streams.
- k. Avoid long, sustained, steep road grades. Where unavoidable, establish effective water bars and sediment diversions.
- l. Vary road grades to reduce concentrated flow in road drainage ditches and culverts to reduce erosion on cut and fill slopes and road surface.
- m. When locating roads, provide access to suitable log landing areas (flatter, well drained) in order to reduce soil disturbance.

2. Design

- a. Incorporate preventive action into transportation plans. Minimize disturbance. Use available information to help identify erodible soils, unstable areas, and road surface materials.
- b. Plan roads to the minimum standard necessary to accommodate anticipated use and equipment. When using existing roads, avoid reconstruction unless absolutely necessary. The need for higher standard roads can be alleviated through better road use management.

- c. Construct cut and fill slopes at stable angles.
- d. Use plans that balance cuts and fills or use full bench construction (no fill slope) where stable fill construction is not possible. Haul excess material to a safe disposal site and include these waste areas in soil stabilization planning for the road.
- e. Contour and roll road grades for minimal disruption of drainage patterns.

3. Drainage

- a. Design water crossing structures at points where it is necessary to cross stream courses. Provide for adequate fish passage, minimum impact on water quality, and at a minimum the 25 year frequency runoff. A 124 permit by BLM or a 310 permit by a private contractor is required for perennial stream crossings.
- b. Install culverts to conform to the natural stream bed and slope. Place culverts slightly below normal stream grade to avoid culvert outfall barriers.
- c. Design culvert installations to prevent erosion of fill. Compact the fill material to prevent seepage and failure. Armor the inlet and/or outlet with rock or other suitable material where needed.
- d. Provide adequate drainage for the road surface. Use outsloped roads, insloped roads with ditches and cross drains or drain dips. Dips should be constructed deep enough into the subgrade that traffic will not obliterate them.
- e. Plan ditch gradients steep enough, generally greater than 2%, but less than 8%, to prevent sediment deposition and ditch erosion. Gradient depends on parent material.
- f. Design the spacing of road drainage facilities based on geologic type, soil erosion class, and road grade.
- g. Where possible, install ditch relief culverts at the gradient of the original ground slope, otherwise anchor downspouts to carry water safely across the fill slope.
- h. Skew relief culverts 20 to 30 degrees toward the inflow from the ditch to provide better inlet efficiency.
- i. Provide energy dissipators where necessary at the downstream end of ditch relief culverts to reduce the erosion energy of the emerging water.
- j. Protect the upstream end of cross drain culverts from plugging with sediment and debris. Prevent downslope movement of sediment by using sediment catch basins, drop inlets, changes in road grade, headwalls, and recessed cut slopes.
- k. Install culverts to assure protection from crushing due to traffic. Use 1 foot minimum cover for corrugated metal pipes 15 to 36 inches in diameter, and a cover of one-third diameter for larger corrugated metal pipes.
- l. Use corrugated metal pipes with a minimum diameter of 15 inches to avoid plugging.
- m. Install road drainage facilities above stream crossings so water may be routed through a streamside management zone before entering a stream.

4. Construction

- a. Place debris, overburden, and other waste materials associated with construction activities in a location to avoid entry into streams.
- b. Minimize stream channel disturbances and related sediment problems during construction of roads and installation of stream crossing structures. Do not place easily eroded material into live streams. Remove material

stockpiled on a floodplain before rising water reaches the stockpile. Locate bypass roads to have minimal disturbance on the stream course. Limit construction activity to specific times to protect beneficial water uses.

- c. Minimize earth moving activities when soils appear excessively wet. Do not disturb roadside vegetation more than necessary to maintain slope stability and to serve traffic needs.
- d. Clear all vegetative material before constructing the fill portion of the road prism.
- e. On potentially erodible fill slopes, windrow slash at the toe of the fill slopes to trap sediment, particularly near stream crossings and on erodible fill slopes. Leave breaks for wildlife passage.
- f. Stabilize erodible, exposed soils by seeding, compacting, riprapping, benching, mulching, or other suitable means prior to fall or spring runoff.
- g. Keep slope stabilization, erosion and sediment control work as current as possible with road construction.
- h. Install drainage structures concurrent with construction of new roads and always prior to fall or spring runoff.
- i. Complete or stabilize road sections within the same operating season as construction is started, rather than leave major road sections in a pioneer condition over a winter season.
- k. Minimize sediment production from borrow pits and gravel sources through proper location, development, and reclamation.

5. Maintenance

- a. Grade road surfaces as often as necessary to maintain a stable running surface and to retain the original surface drainage.
- b. Avoid cutting the toe of stable cut slopes when grading roads or pulling ditches.
- c. When plowing snow for winter timber harvest, provide breaks in snow berm to allow road drainage.
- d. Keep erosion control measures functional through periodic inspection and maintenance.
- e. Haul all excess material removed by maintenance operations to safe disposal sites. Apply stabilization measures to these sites to prevent erosion. Avoid side casing material where it will enter a stream or be available to erode directly into a stream.
- f. Leave closed roads in a condition that provides adequate drainage without further maintenance.
- g. Restrict the use of roads during wet periods and spring breakup period if damage to road drainage features resulting in increased sedimentation is likely to occur.

B. Timber Harvesting and Reforestation

1. Harvest Design

- a. Consider the following during development of timber harvest systems:
 - 1) Soil characteristics and erosion hazard identification
 - 2) Rainfall characteristics
 - 3) Topography

4) Plant cover (forest type understory, silvics)

5) Critical components (aspect, water courses, landform, etc.)

6) Silvicultural objectives

7) Existing watershed condition

8) Potential effects of multiple resource management activity on beneficial water uses.

9) Compliance with Montana Water Quality Act, State Water Quality Standards and Public Water Supply Act. Manage community and non-community public water supply watershed to comply with State Water Quality Standards. The Public Water Supply Act (75-6-101-MCA) requires approval of plans and specifications for road and other disturbance from the Water Quality Bureau for activities planned for public water supply watersheds.

- b. Leave streamside management zones (SMZs) on both sides of perennial streams and intermittent streams with a well defined channel. This zone provides shading, soil stabilization, and sediment and water filtering effects.
- c. Use the logging system that best fits the topography, soil type, and season, while minimizing soil disturbance and economically accomplishing silvicultural objectives. Consider the potential for erosion prior to tractor skidding on slopes greater than 40%.
- d. Design and locate skid trails and skidding operations to minimize soil disturbance. The use of designated skid trails is one means of limiting site disturbance and soil compaction.
- e. Locate skid trails to avoid concentrating runoff and provide breaks in grade.
- f. Locate skid trails and landings away from natural drainage systems and divert runoff to stable areas.
- g. Use the economically feasible yarding system which will minimize road densities.

2. Harvesting Activities

- a. Avoid falling trees or leaving slash in streams or water bodies.
- b. Limb or top trees where debris cannot fall or be dragged into the stream.
- c. Ground skidding through any perennial stream is not allowed except by permit from the Conservation District (Natural Streambed and Land Preservation Act of 1975 - 310 permit).
- d. Minimize operation of wheeled or tracked equipment within the streamside management zones (SMZ) of stream courses designated for protection. Do not operate equipment on stream banks.
- e. End-line logs out of streamside areas when ground skidding systems are employed.
- f. Logs will be fully suspended when line skidding across a stream and immediately above streambanks.
- g. Remove debris entering any stream concurrently with the yarding operation and before removal of equipment from the project site. Accomplish debris removal so the natural streambed conditions are not disturbed. Leave natural occurring downfall material providing fish habitat.
- h. Avoid equipment operation in wetlands, bogs, and wet meadows except on designated roads. Use end-lining and directional falling for harvest operations in these areas.
- i. Repair damage to a stream course caused by logging operations, including damage to banks and channel, to as reasonable condition as possible without causing additional damage to the stream channel.

- j. Tractor skid when compaction, displacement, and erosion will be minimized.
- k. Install necessary water bars on tractor skid trails prior to expected periods of heavy runoff. Appropriate spacing between bars is determined by the soil type and slope of the skid trail. Timely implementation is important.
- l. Construct draingate structures on skid trails to prevent water and sediment from being channeled directly into stream courses.
- m. Construct water bars and/or seed skid trails and landings, where natural revegetation is inadequate to prevent accelerated erosion, before the next growing season. A light ground cover of slash or straw will help retard erosion.
- n. Avoid skidding with the blade lowered.
- o. Suspend the head end of the log whenever possible.
- p. Minimize the size and number of landings to that necessary for safe, economical operation.
- q. Avoid decking logs within the high water mark of any stream.
- r. Provide suitable delivery, storage, and disposal for all fuels, shop debris, waste oil, etc.

3. Slash Treatment and Site Preparation

- a. Rapid reforestation of harvested areas is encouraged to reestablish protective vegetation.
- b. Use brush blades on cats when piling slash. Avoid use of dozers with angle blades. Site preparation equipment producing irregular surfaces are preferred. Care should be taken to avoid severe disruption of the surface soil horizon.
- c. Minimize or eliminate elongated exposure of soils up and down the slope during mechanical scarification.
- d. Scarify the soil to the extent necessary to meet the reforestation objective of the site. Low slash and small brush should be left to slow surface runoff, return soil nutrients and provide shade for seedlings.
- e. Carry out brush piling and scarification when soils are dry enough to minimize compaction and displacement.
- f. Carry out scarification on steep slopes in a manner that minimizes erosion. Broadcast burning and/or herbicide application is a preferred means for site preparation on slopes greater than 40%.
- g. Maintain an streamside management zone between site preparation or slash disposal areas and streams.
- h. Scarify landings and temporary roads on completion of use.
- i. Do not apply chemical vegetation control treatment to water bodies. Provide suitable buffer strips between chemical mixing and application areas and all water bodies.
- j. Apply pesticide and dispose of containers according to label and Environmental Protection Agency registration directions. Make contingency plans to follow in case of accidental spills. Mixing and disposal of chemicals should be supervised by a licensed applicator.
- k. Limit water quality impacts of prescribed fire: construct water bars in firelines; reduce fuel loadings in drainage channels; maintain the streamside management zone; avoid intense fires unless needed to meet silvicultural goals.

C. Fire Suppression

1. Minimize watershed damage from fire suppression by avoiding heavy equipment operation on fragile soils and steep slopes.
2. Stabilize suppression damage where erosion potential has increased. Treatments include installing water bars, seeding, planting, fertilizing, spreading slash or mulch on bare soil, repairing road drainage facilities, and clearing stream channels of debris.
3. Conduct burn area surveys where necessary to assess the need for rehabilitation of watershed damage. Rehabilitation measures may include: seeding, fertilizing, fencing, clearing debris from stream channels, constructing trash racks, channel stabilization structures and debris retention structures.
4. Consider the impacts of sewage disposal when establishing locations for fire camps, logging camps, or other similar facilities.

APPENDIX F

BIOLOGICAL ASSESSMENT JUDITH VALLEY PHILLIPS RESOURCE MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT

INTRODUCTION

This biological assessment of threatened and endangered wildlife species evaluates impacts associated with resource management proposals which are part of the Judith Valley Phillips Resource Management Plan and Environmental Impact Statement (RMP/EIS). The assessment is in response to the requirements of Section 7(c) of the Endangered Species Act (ESA) as amended.

This assessment is a summary of the Final RMP/EIS and detailed descriptions of alternatives and other factors put forth in the RMP/EIS will not be extensively duplicated here. The Draft RMP will be used as a prototype for the final when referring to various sections of the Final RMP/EIS. If a section of the Final is revised, it will be discussed in this document, otherwise the draft will become the final document. The wildlife values affected are described in Chapter 3, pages 123 to 130 of the Draft RMP/EIS and anticipated effects are given on pages 177 to 188 in Chapter 4.

The planning area (Figure 1.1, page 2, in the Draft RMP/EIS) includes the Judith Resource Area (RA) (Fergus, Petroleum, Judith Basin and the southern half of Chouteau County), the Valley RA (Valley County) and the Phillips RA (Phillips County). A small portion of the Judith and Phillips RAs are included in the Upper Missouri National Wild and Scenic River (UMNWSR) Corridor and management of these lands is addressed in the West Hi-line RMP/EIS. The planning area encompasses 11,934,041 acres, of which 2,806,157 surface acres (24%) and 3,387,687 acres of mineral estate (28%) are administered by the Bureau of Land Management (BLM). The majority of landownership is private. Other significant landownership includes the Fort Belknap Indian Reservation, the State of Montana and the U.S. Forest Service.

The Judith Valley Phillips RMP/EIS provides a comprehensive plan for managing land and resources administered by BLM. The RMP/EIS is primarily focused on resolving nine resource management issues. These issues are:

1. Land Acquisition and Disposal
2. Access to BLM Land
3. Off-Road Vehicles
4. Oil and Gas Leasing and Development
5. Hardrock Mining
6. Riparian and Wetland Management of Watersheds
7. Elk and Bighorn Sheep Habitat Management
8. Prairie Dog and Black-footed Ferret Management
9. Areas of Critical Environmental Concern (ACEC)
 - a. Judith Mountains Scenic Area
 - b. Acid Shale-Pine Forest
 - c. Square Butte Outstanding Natural Area
 - d. Collar Gulch
 - e. Azure Cave
 - f. Big Bend of the Milk River

Five alternatives are presented for analysis within the RMP/EIS to resolve the nine issues. Alternative A represents No Action or Current Management; Alternative B would generally provide the maximum opportunity for exploration, development and production of BLM land and resources with minimum restrictions; Alternative C provides for balanced consumptive and non-consumptive uses of public land resources; Alternative D emphasizes resource protection; and Alternative E balances the demands of resource development and the protection of sensitive areas and resources.

Management Common to All Alternatives (pages 9-31 of the Draft RMP/EIS) discusses BLM management of non-issue resources. Each alternative combined with the Management Common to All Alternatives section will provide management direction for all resources.

AFFECTED SPECIES

According to a letter from the U. S. Fish and Wildlife Service (FWS), March 15, 1991, the following listed threatened and endangered (T&E) species may be present in the planning area.

<u>Listed Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Bald eagle (<u>Haliaeetus leucocephalus</u>)	Endangered	Year-round resident, winter resident, migrant
Peregrine falcon (<u>Falco peregrinus</u>)	Endangered	Summer resident, migrant
Black-footed ferret (<u>Mustela nigripes</u>)	Endangered	Potential resident in prairie dog (<u>Clomys</u> sp.) towns
Piping plover (<u>Charadrius melodus</u>)	Threatened	Summer resident, nesting

<u>Proposed Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
None		

A description of the occurrence of these species can be found on pages 123 and 124 in the Draft RMP/EIS. A summary of that information follows:

Bald eagles are fairly common migrant and wintering birds. They occur throughout the planning area following the fall and spring waterfowl migration. Wintering eagles have been observed primarily along major rivers where open water provides fish and waterfowl as food sources. No eagle nesting is known to occur on BLM land in the planning area. However, potential nesting habitat is present along the Missouri and Milk Rivers.

Peregrine falcons have been sighted during spring and fall migrations in the planning area. No known historical eries exist in the area. However, potential nesting sites are present along the Missouri River, particularly in the Larb Hills and in the isolated mountain ranges of the planning area. Prairie falcons and golden eagles occupy many of the potential peregrine falcon nesting sites.

No black-footed ferrets are known to occur in the planning area. Approximately, 250 black-tailed prairie dog towns have been identified in the planning area (Table 3.20, page 127, in the Draft RMP/EIS). Towns in the Phillips RA are large and numerous. Most of these towns form a large complex ideal for black-footed ferret reintroduction. This 7km complex is known as the North Central Montana Complex (NCMC). The NCMC complex has been identified by the Montana Department of Fish, Wildlife and Parks (MDFWP) and FWS as Montana's best reintroduction area. This area ranks as one of the three best ferret reintroduction areas in the United States. The towns in the Judith and Valley RAs are small and isolated and do not occur in complexes and lack an adequate prey base for even an isolated ferret population.

The piping plover was listed in January 1986, as threatened in the planning area. Although an intensive inventory has not been completed as yet; no sightings have been made within the planning area on BLM land. This species could be a resident, occurring on lake shorelines or on gravel bars or sandy beaches along major rivers. Sightings and nesting of the piping plover have occurred at Fort Peck Reservoir, Bowdoin National Wildlife Refuge, and Nelson Reservoir within the planning area.

MANAGEMENT COMMON TO ALL ALTERNATIVES

This section of the RMP provides guidance for management practices and will be combined with the selected alternative to form the RMP for the entire planning area. This guidance is from previous planning efforts which include the Belt Management Framework Plan (MFP), Fergus MFP, Petroleum MFP, Little Rockies MFP, Phillips MFP, UL Bend-Zortman

MFP, Valley and Willow Creek MFP, Carpenter Creek-Craig Coulee MFP Amendment, Bitter Creek Wilderness EIS, Missouri Breaks Wilderness EIS, Prairie Potholes Vegetation Allocation EIS, Missouri Breaks Grazing EIS, Containment/Eradication of Selected Noxious Plants Programmatic Environmental Assessment (EA), Willow Creek Interdisciplinary Watershed Activity Plan EA, Wildlife Habitat Improvement Project Programmatic EA, and Small Sales of Forest Products Programmatic EA. Guidance which pertains directly to T&E species can be found on pages 16 and 17 in Chapter 2 of the Draft RMP/EIS. This guidance will be used to manage actions taken on BLM land such as vegetation manipulation, reservoir construction, etc. This guidance can be summarized as follows:

1. BLM will maintain and enhance suitable habitat for all species of wildlife. The emphasis for habitat maintenance and development will be on present and potential habitat for sensitive, threatened and/or endangered species, nesting waterfowl, crucial winter ranges, non-game habitat and fisheries.
2. BLM will consult with the FWS when any action may effect a threatened or endangered species or its habitat.
3. No action will be initiated on BLM land which will jeopardize any candidate or federally listed threatened and endangered (T&E) plant or animal. Impacts to state designated species of special interest will be evaluated and applicable mitigation developed prior to the initiation of any action on BLM land.
4. BLM will cooperate with the FWS to recover threatened and endangered species, including reintroduction efforts. The federal T&E species presently are the bald eagle, peregrine falcon, black-footed ferret, and piping plover. Federal candidate species are the ferruginous hawk, mountain plover, and long-billed curlew. BLM will cooperate with MDFWP to manage Species of Special Concern. Table 2.1, page 16, in the Draft RMP/EIS lists these species for the planning area. This table has been expanded by additional data received during the comment period.
5. Currently there are no known bald eagle, peregrine falcon, or piping plover nesting sites or black-footed ferrets on BLM land in this planning area. However, if a nesting site were discovered or a reintroduction proposed, BLM will adhere to the species specific approved recovery plan and guidance.

Decision - Positive May Effect

Rationale - These five factors provide for enhancing habitats; mitigation of negative impacts including those actions on BLM land such as vegetation manipulation, reservoir construction, habitat improvement, etc.; consultations with the FWS per the ESA; and guidance given in recovery plans. This management guidance provides the necessary habitats and/or protection for T&E species, federal candidate species and Montana Species of Special Concern.

ISSUE ANALYSIS

This analysis will be divided into 9 issue areas as they are presented in the Preferred Alternative, pages 78 to 90, of the Draft RMP/EIS.

LAND ACQUISITION AND DISPOSAL

Proposed Action: BLM would pursue acquisitions as opportunities arise through exchange or purchase with willing proponents and/or sellers. BLM would not use condemnation for land acquisition under this component of the land use plan. Acquisitions could include private, state, or other land that would meet the objectives of the State Director's Guidance on Land Pattern Review and Land Adjustment (1984) (see Appendix A). Lands meeting the criteria in Appendix A would be in conformance with the land use plan. The main objective would be to attain a BLM land pattern which balances multiple resource values and brings about better manageability. Lands acquired would have multiple resource values such as access, riparian-wetland areas, ACECs, recreation and wildlife habitat. All of the identified lands that meet acquisition criteria, tables and maps have been dropped.

A total of 161,968 acres of BLM land would be available for disposal to meet the acquisition objectives (see Table 2.40, Appendix A and Map 1 in the back of this document). The lands identified for disposal would be available for exchange. These lands may also be available for sale to facilitate an individual land exchange. For purposes of sale these lands meet FLPMA disposal criteria Sec. 203(a) (1). BLM land identified for disposal would be subject to further site specific evaluation and if significant value are found they may be retained under BLM management. An environmental analysis and Notice of

Realty Action would be completed for each disposal action. For the areas not identified for disposal the underlying philosophy is long term public ownership. However, minor adjustments involving primarily land exchange may occur if the public interest and plan objectives are served.

There will be no overall net gain in BLM land over the life of this plan.

Decision: Positive May Effect

Rationale: All land adjustments require that an EA be prepared. This assessment will evaluate the resource values gained and/or lost. This requires that an assessment of the T&E habitat be prepared. The impacts of the action could require an informal consultation with the FWS to evaluate an exchange. Existing or potential habitat for federal T&E species, federal candidate species, or Montana Species of Special Concern would be a priority for acquisition. Priority areas could include bald eagle historic nesting sites with continuing potential, active nesting sites, and documented roosting and wintering areas; peregrine falcon nest sites or suitable hacking sites; piping plover nest sites; or black-tailed prairie dog towns necessary for a black-footed ferret reintroduction; habitat for future listed species, etc. Any acquired T&E habitat would be a positive benefit to species recovery.

ACCESS TO BLM LAND

Proposed Action: BLM would pursue new legal public access to 71,793 acres of BLM land and additional public access to 1,126,858 acres in the planning area. This also includes preserving and improving access to, through and from BLM land. This would provide for improved public land management and use by the general public for hunting, camping, picnicking, and other recreational activities. BLM would support the public road network leading to BLM land by cooperating with the respective counties to assure access. Some BLM roads or trails would be extended and/or upgraded to reflect public access needs. Additional areas for access and road extension or upgrading could be identified in the future based on transportation planning.

BLM would use existing laws, regulations and guidelines. During activity planning and/or route analysis, access may be defined as foot, horse, trail or road.

Decision: No Effect

Rationale: New and additional access could be controlled if needed to protect various resources such as T&E species. However, at this time there is no known T&E species habitat that would be impacted nor need restrictions because of public access.

OFF-ROAD VEHICLES

Proposed Action: BLM would designate 1,990,501 acres open, 813,709 acres limited and 1,947 acres closed to off-road vehicles. These restrictions would protect resource values in ACECs, WSAs, maintain or improve watersheds, reduce user conflicts, and reduce wildlife harassment and provide habitat security. A 40 acre intensive ORV area would be available north of Glasgow. Those roads not designated open within limited areas would be closed from September 1 through December 1. BLM would allow game retrieval in most areas, but would limit it to specific time periods in other areas. BLM would also allow off-road travel to administer any lease.

Decision: No Effect

Rationale: The restrictions placed on ORV use are designed to protect a variety of resource values, including wildlife and T&E species. The 40 acre designated intensive use area was selected after consideration of resource impacts including T&E. Should any additional areas be designated for intensive ORV use, T&E species habitat would be protected from disturbance. Current and expected ORV use in the planning area would be a minor impact to T&E species. Should ORV use become a problem in areas sensitive to T&E species, protective restrictions would be placed on further use. If this does not eliminate the problem, the FWS would be formally consulted on possible alternatives.

OIL AND GAS LEASING AND DEVELOPMENT

Proposed Action: BLM would lease 1,474,481 acres with standard terms only, 1,760,426 acres with stipulations, 34,818 acres with No Surface Occupancy and close 117,962 acres within the planning area. This would provide for oil and gas exploration and development while protecting other resource values. Where these values cannot be protected the areas would be closed.

Oil and Gas leasing would be allowed with Controlled Surface Use Stipulations on all prairie dog towns within the 7km Complex. When an oil and gas activity is proposed, the authorized officer of the BLM is responsible for applying conditions of approval to prevent adverse effects on the reintroduction and recover of black-footed ferrets. The "Draft Guidelines for Oil and Gas Activities in Prairie Dog Ecosystems Managed for Black-footed Ferret Recovery," FWS, 1990, will guide the development of appropriate conditions of approval for the proposed activity.

Waivers, exceptions, and modifications to these stipulations would be allowed that are determined to have no adverse effect on the integrity of ferret habitat for purposes of reintroducing and recovering black-footed ferrets. The BLM authorized officer will coordinate with the Montana Black-footed Ferret Coordination Committee (MBFCC) before making a final decision on waiving, excepting, or modifying the stipulation.

Decision: Positive May Effect

Rationale: The various stipulations (Appendix B, pages 269-312, in the Draft RMP/EIS and the above black-footed ferret stipulation) would be placed on oil and gas leases to protect wildlife values including T&E species. Each oil and gas lease would be evaluated as to location to see what impact it will have on the wildlife resource. Stipulations would be added to the oil and gas lease to protect specific habitat. These stipulations would protect T&E species, however, at this time there are no known T&E species present on BLM land in the planning area. The stipulations, however, would protect T&E species habitat if it did occur on BLM land. Standard terms of moving the activity 200 m or delaying it for 60 days would also be available to protect less sensitive areas and may be all that is necessary to protect other wildlife habitat.

HARDROCK MINING

Proposed Action: BLM would provide for hardrock mineral development while protecting other resources of exceptional value through withdrawal from mineral entry or with special management prescriptions. BLM would continue the Azure Cave mineral withdrawal. The South Moccasin Mountains would be removed from the South Moccasin-Judith Mountains Scenic Area ACEC.

Decision: Positive May Effect

Rationale: Mining activities are very visible in the planning area but very small in distribution and size. Hardrock mining exploration and development does have an impact on wildlife habitat, animal harassment, and animal loss, however it is very localized. The various protective withdrawals, the reclamation that must take place on the mining areas that mitigate wildlife impacts and the amount of actual surface disturbance (less than 10%) would not have a significant impact on the wildlife resource. T&E species are considered during exploration and development pre-mining activities. If habitat is present in or near the mining area, mitigation is developed to protect any T&E species. However, no T&E habitat is known to occur on or near the present or potential mining activities.

RIPARIAN AND WETLAND MANAGEMENT OF WATERSHEDS

Proposed Action: BLM would maintain and/or improve the riparian-wetland areas in exiting, proposed, and potential Allotment Management Plans (AMPs) along with wetlands in non-AMP areas on a ranking basis based on proper functioning condition and vegetation types. Ranking would be based on potential as determined by intensive inventories in the Prairie Potholes and Norther Great Plains Regions (Appendix H, pages 369 to 380 in the Draft RMP/EIS). The ranking may change as intensive inventories are completed in the planning area. Some allotments may be recategorized because of riparian-wetland values.

The final RMP would clarify the definition of riparian-wetland areas according to the Montana Riparian Association.

The objectives would be to improve or maintain riparian-wetland areas to proper functioning condition and late seral or

potential natural community. These objectives would be met by grazing methods. When trend is substantially improving, the prescribed grazing method would be continued. If grazing methods are not successful in meeting management objectives, BLM would take the necessary action to achieve those objectives. This could include, but is not limited to fencing riparian-wetland areas, reducing livestock numbers and use and rehabilitating degraded riparian areas.

Decision: Positive May Effect

Rationale: Riparian-wetland management would be implemented through an AMP. Threatened and Endangered species would be considered during the AMP process. Riparian wetland management would have little or no impact on the presently known T&E species. Developments for waterfowl production could provide some additional habitat for piping plovers. Sandy and gravelly beaches would be programmed into the larger waterfowl projects.

ELK AND BIGHORN SHEEP HABITAT MANAGEMENT

Proposed Action: BLM would provide habitat to maintain and/or allow for the expansion of elk and bighorn sheep in the planning area. This habitat consists of 593,980 rather than 660,140 acres for elk and 156,930 acres for bighorn sheep. BLM would provide habitat for elk dependent on landowner tolerance and the MDFWP elk management plan for these areas. BLM would pursue land exchanges and identify areas for lure crops to manage elk and bighorn sheep habitat. Domestic sheep grazing would not be allowed to overlap bighorn sheep habitat to ensure no contact between domestic and bighorn sheep.

Decision: No Effect

Rationale: BLM would provide habitat for elk and bighorn sheep. This action would not effect T&E habitat within the planning unit.

PRAIRIE DOG AND BLACK-FOOTED FERRET MANAGEMENT

Proposed Action: BLM would provide prairie dog habitat for black-footed ferret reintroduction and long-term ferret recovery; associate species (mountain plover, burrowing owl and ferruginous hawk); recreational viewing; and prairie dog shooting. BLM land identified for reintroduction of the black-footed ferret would be designated an ACEC. This habitat may also help prevent the need for listing of the mountain plover, burrowing owl and ferruginous hawk as threatened or endangered. If one of these species would become listed, BLM would consult with the FWS to assure this RMP meets the habitat needs. If this plan would not meet those needs, BLM would amend this RMP.

BLM, in cooperation with the FWS and MDFWP, would maintain the existing prairie dog habitat and distribution on BLM land within the 7km Complex based on the 1988 survey. BLM would also support maintaining prairie dog towns on CMR, DSL and private land within the 7km Complex. The 7km Complex contains approximately 26,000 acres of prairie dog towns (12,346 BLM acres, 5,800 CMR acres, 2,012 DSL acres and 5,821 private acres). Management actions would be directed to cooperatively maintain this amount of prairie dog habitat.

A Cooperative Black-footed Ferret Reintroduction and Management Plan would be developed with the affected landowners, BLM, CMR, MDFWP, DSL and FWS. The 12,346 acres of prairie dog towns on BLM land may fluctuate in accordance with the guidelines in the plan.

Prairie dogs on BLM land outside the 7km Complex are non-essential to black-footed ferret recovery and would be maintained at the existing level (1988 survey) or controlled based on values other than the ferret.

Decision: Positive May Effect

Rationale: BLM would provide habitat for black-footed ferret reintroduction in south Phillips RA. The acreage and distribution of the existing prairie dog towns associated with the CMR, DSL and private landowners would provide an excellent opportunity to release and study reintroduction of the ferret back into the wild. A black-footed ferret reintroduction plan would be jointly prepared by the FWS and MDFWP with cooperation by BLM. The plan would address BLM concerns identified in the Draft RMP/EIS on page 87. This is a positive benefit to the reintroduction of the black-footed ferret.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Now the JUDITH MOUNTAINS SCENIC AREA

Proposed Action: BLM would designate 3,702 rather than 4,566 BLM acres an ACEC to protect the scenic qualities of the visual resources in the Judith Mountains. This area would be managed to protect the visual resources from surface disturbing activities. Surface disturbing activities would not be allowed which could not be mitigated and reclaimed to natural conditions.

Decision: No Effect

Rationale: The Judith Mountains do not contain any known habitat for T&E species. This action would have no effect on T&E species.

ACID SHALE-PINE FOREST

Proposed Action: BLM would designate two representative BLM tracts, War Horse (817 acres) and Briggs Coulee (1,646 acres), within an acid shale-pine forest ecosystem an ACEC to protect an endemic plant community unique to the area and a fragile watershed. The area would be a Research Natural Area where research would be allowed to determine the effects of grazing, fire, etc. on this type of plant community. BLM would allow research at War Horse and maintain Briggs Coulee as a control site.

Decision: No Effect

Rationale: The Acid Shale-Pine Forest ecosystem does not contain any known habitat for T&E species. This action would have no effect on T&E species.

SQUARE BUTTE OUTSTANDING NATURAL AREA

Proposed Action: BLM would designate 1,947 BLM acres an ACEC to protect natural endemic systems, cultural sites, scenic qualities, rare geologic features unique to Montana and identify key wildlife viewing sites under the Watchable Wildlife Program. This area would be managed primarily for wildlife, cultural resources, and recreation.

Decision: No Effect

Rationale: Square Butte contains wildlife habitat for a number of species (mule deer, elk, mountain goat, prairie falcons, golden eagles, etc). However, the butte does not contain any known habitat for T&E species. This action would have no effect on T&E species.

COLLAR GULCH

Proposed Action: BLM would not designate 1,618 BLM acres an ACEC and current management practices would continue. Current management would include the evaluation of alternate operating practices and mitigating measures during technical review and environmental analysis of individual Plans of Operations.

Decision: No Effect

Rationale: Mitigating measures would be evaluated during review of Plans of Operations to protect the westslope cutthroat trout. The area does not contain any known habitat for T&E species. This action would have no effect on T&E species.

AZURE CAVE

Proposed Action: BLM would designate 140 BLM acres an ACEC to protect cave resources and potentially the northern most bat hibernaculum in the United States. The cave would be managed to protect bats during crucial periods and allow specific and general recreation use on a limited basis.

Decision: No Effect

Rationale: This action would protect the bat population of Azure Cave and the hibernaculum. There are no known T&E species associated with the cave. This action would have no effect on T&E species.

BIG BEND OF THE MILK RIVER

Proposed Action: BLM would designate 2,120 acres of BLM land within the Henry Smith and Beaucoup Sites an ACEC to protect archaeological resources representative of prehistoric occupations of the glaciated prairie in the northwestern plains. The Henry Smith Site would be managed for interpretation and the Beaucoup Site for research.

Decision: No Effect

Rationale: The Big Bend area does not contain any known habitat for T&E species. This action would have no effect on T&E species.

CUMULATIVE IMPACTS

The Judith Valley Phillips RMP/EIS provides necessary commitments by BLM to ensure that proposed site-specific actions covered by this plan are evaluated for impacts which "may effect" T&E species, including formal and informal consultation with the FWS whenever necessary. The actions considered in the RMP/EIS including other actions taken on BLM land such as vegetation manipulation, reservoir construction, weed control and those actions continuing or anticipated on private and state lands such as farming, timber harvest, and reservoir construction do not jeopardize any T&E species at this time.

This agency's opinion, considering the above nine issues and guidance for Management Common to All Alternatives, is that there is a "Positive May Effect" on T&E species for the proposed action.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
FEDERAL BUILDING, US COURTHOUSE
301 S PARK
P O BOX 10023
HELENA MT 59626

IN REPLY REFER TO:

FWE-61130-Billings
M.02-BLM JVP/RMP

May 21, 1992

MEMORANDUM

TO: District Manager, Bureau of Land Management, Lewistown District,
Lewistown, Montana

FROM: Montana State Supervisor, Fish and Wildlife Enhancement, USFWS,
Helena, Montana

SUBJECT: Biological Assessment for Final Judith-Valley-Phillips Resource
Management Plan and Environmental Impact Statement

The U.S. Fish and Wildlife Service (Service) finds, based on information in the biological assessment for the final Judith-Valley-Phillips Resource Management Plan, a "no adverse" affect for peregrine falcon, bald eagle and piping plover and concurs with the "positive may" affect finding for the black-footed ferret. Since the Resource Management Plan provides an adequate prairie dog habitat allocation for potential black-footed ferret reintroduction and no adverse affects to the ferret are identified in the biological assessment, the Service has determined, pursuant to S402.13(a) of 50 CFR, that formal consultation is not warranted.

DMC\jf

Bill Olsen

cc: Area Manager, Bureau of Land Management, (Malta, MT)
Billings Suboffice, USFWS, Fish & Wildlife Enhancement (Billings, MT)

"Take Pride in America"

APPENDIX G

BUREAU OF RECLAMATION WITHDRAWAL REVIEW

**LETTER OF AGREEMENT
CONCERNING WITHDRAWAL REVIEW
ON BLM'S JUDITH-VALLEY-PHILLIPS
RESOURCE MANAGEMENT PLAN AREA
and
RECLAMATION'S MILK RIVER PROJECT
(VALLEY AND PHILLIPS COUNTIES)**

BLM, as part of its responsibilities under the FLPMA, will allocate resource uses on public lands through the JVP RMP, including reviewing withdrawals of public land made by other agencies for various public purposes. Reclamation has made withdrawals of public lands for their ongoing Milk River Project, and has a current planning effort for a rehabilitation and betterment program.

The two agencies agree to cooperatively process the withdrawal review and plan for wetlands management in the following manner:

Reclamation will:

based on the attached criteria/procedures, provide BLM rejustification statements for the areas they wish to continue, modify or revoke.

review BLM's application of the withdrawal review process and provide a written statement of concurrence or disagreement for publication in the BLM's RMP.

include BLM Lewistown District as a member of the planning group responsible for establishing wildlife mitigation measures concerning the Milk River R&B program.

BLM will :

include Reclamation in all stages of the development of the JVP RMP.

review Reclamation's rejustification statements according to the attached criteria/procedures and as part of the land use planning process and prepare the necessary documentation for further action.

make a final opinion on the withdrawal review as part of the final JVP RMP.

Both agencies will:

conduct frequent coordination meetings to encourage clear communication of the withdrawal review process and to promote the Department of Interior's initiative for the North American Waterfowl Plan.

jointly pursue mechanisms to implement the Prairie Potholes Joint Venture of the American Waterfowl Plan.

resolve any disputes which occur during the application of the withdrawal review process through the procedures of the standing MOU between the Montana BLM and Great Plains Region of Reclamation before the Record of Decision on the JVP RMP is finalized.

Bureau of Reclamation lands, areas or withdrawals were justified for continuation, modification or revocation by using the following criteria.

CRITERION A

Lands Within a Reservoir Boundary. The specific lands must be determined on a reservoir-by-reservoir basis, however, they are generally described as:

1. All lands which are inundated when the reservoir is at maximum water elevation and an additional 300-feet horizontally landward from the water/land boundary. Withdrawals for reservoirs will normally be described and delineated using the Public Land Rectangular Survey system of townships, ranges, sections and aliquot parts, to the nearest 40 acre aliquot part or lot.
2. All lands required for constructed facilities with a significant capital investment value or possessing a potential safety hazard, including, but not limited to dams, spillways, power plants, penstocks and electrical substations.

Segregation: From settlement, sale, location, or entry under the general lands laws, including the United States mining laws (30 U.S.C. Ch. 2), but not from leasing under the mineral leasing laws.

Term: The remaining estimated life of the project.

Jurisdiction: Reclamation

PROCEDURES FOR IMPLEMENTING CRITERION A

1. Reclamation will reference maximum water elevation.
2. Reclamation will draw a line parallel to maximum elevation at distance of 300 ft. and any 40-acre parcel or lot that the line touches will continue as withdrawn.
3. Dams will require 1/4 mile to control blasting and other items related to dam safety. The 40 acre "parcel rule" will decide which aliquot parts will be continued as withdrawn. Similar justifications for other kinds of facilities will occur.

CRITERION B

Lands Needed for Recreation Development and/or Wildlife Mitigation/Enhancement. These are lands which are included as project requirements in the authorization or appropriation legislation, or have been established through historical use, whether or not within a reservoir boundary. (Congress has made these an integral part of the project and part of the primary purpose of the withdrawal.)

Segregation: From settlement, sale, location, or entry under the general lands laws, including the United States mining laws (30 U.S.C. Ch. 2), but not from leasing under the mineral leasing laws.

Term: The remaining estimated life of the project.

Jurisdiction: Reclamation

PROCEDURES FOR IMPLEMENTING CRITERION B

1. There are no recreation or wildlife mitigation functions authorized by Congress for the Milk River project. The Bureau of Reclamation will make no justifications on this basis.

CRITERION C

Watershed Areas. Those watershed areas immediately above water resource developments where there is a reasonable concern that nondiscretionary mineral entry may cause damage to facilities or degradation of water quality, especially where the water resource is to be used by municipal and industrial users. Generally, large watershed areas will not be recommended for withdrawal. The need for a withdrawal must be assessed on a case-by-case basis.

- Segregation: From location or entry under the United States mining laws (30 U.S.C. Ch. 2), but not from leasing under the mineral leasing laws.
- Term: The remaining estimated life of the project.
- Jurisdiction: The BLM, U.S. Forest Service (FS) or other appropriate land managing agency. Before activities are authorized in these areas, Reclamation shall be advised.

PROCEDURES FOR IMPLEMENTING CRITERION C

1. No known issues exist in this area. Nationwide, this is a more critical issue in the southwest where major mining activities could indirectly affect potable water supplies for municipalities through flooding. If a situation is discovered that meets Criterion C the BLM and Reclamation will meet and come to agreement about the justification language.

CRITERION D

Water Recharge Areas. Lands where there is a "constructed" and operating groundwater recharge "facility." The need for a withdrawal must be assessed on a case-by-case basis.

The term "construction" includes actions to improve the surface recharge rate, i.e., dikes and facilities such as injection wells. The withdrawal is to protect an area where an irrigation district or Reclamation is spreading, injecting, or by other means banking excess water in an aquifer for future mining during drought years.

- Segregation: As appropriate to provide the needed level of protection to the recharge project, up to and including segregation from settlement, sale, location, or entry under the general lands laws, including the United States mining laws (30 U.S.C. Ch. 2), but not from leasing under the mineral leasing laws.
- Term: Twenty years or lease, as appropriate to the recharge plan.
- Jurisdiction: Reclamation, but may be the BLM depending on the level of control needed by Reclamation.

PROCEDURES FOR IMPLEMENTING CRITERION D

1. This is not an issue in this area. Reclamation will not make justifications on this basis.

CRITERION E

Lands Needed for Flood Control Structures and Impoundment Areas. Related material sites may be recommended for withdrawal based on a need for guaranteed availability of emergency access to mineral materials.

This includes, but is not limited to, areas where storm water retention, diversion and flow is contained and/or directed away from major canals, power substations, or other such features. Also included may be the floodway or floodplain lands lying below a Reclamation dam which may be inundated by release of excess flows before or during storm surges reaching the Reclamation reservoir.

- Segregation: From settlement, sale, location, or entry under the general lands laws, including the United States, mining laws (30 U.S.C. Ch. 2), but not from leasing under the mineral leasing laws.

Term: Usually, the remaining estimated life of the facility being protected.
Jurisdiction: Reclamation, although other arrangement may be appropriate.

PROCEDURES FOR IMPLEMENTING CRITERION E

1. This criterion will address material sites. Material sites will generally be no larger than 40 acres. Smaller acreage may be adequate. Reclamation will make justifications on an individual basis.

CRITERION F

Water Quality Facilities. These facilities include salinity control facilities and sludge disposal areas.

Segregation: From settlement, sale, location, or entry under the general land laws, including the United States mining laws (30 U.S.C. Ch. 2), but not from leasing under the mineral leasing laws.

Term: Not more than a 20-year term will be used.

Jurisdiction: Reclamation

PROCEDURES FOR IMPLEMENTING CRITERION F

1. This is not an issue in this area. Reclamation will make no justifications on this basis.

CRITERION G

Lands Needed for Named Main Delivery Canals. These canals must have been constructed with federal funds and used to transport water to reservoirs or from the dam site to the feeder canals. All other canals will be authorized by a right-of-way.

The width of the withdrawn area will be limited to the flowage way and sufficient area on both sides to accommodate operations and maintenance activities, generally a width of 100 to 300 feet. Adjacent material sites, seepage hazard areas, and certain facilities areas may require a site specific increase in the width of the withdrawal.

Segregation: From settlement, sale, location, or entry under the general land laws, including the United States mining laws (30 U.S.C. Ch. 2), but not from leasing under the mineral leasing laws.

Term: Normally, the estimated life of the project served by the canal.

Jurisdiction: Reclamation

PROCEDURES FOR IMPLEMENTING CRITERION G

1. Canals that are shown on project maps and described in the overall project plan will be justified by Reclamation.
2. Some feeder canals are shown on project maps and will be considered named main delivery canals and justified by Reclamation. An example is the canal that supplies Nelson Reservoir.
3. Feeder canals as described in the draft interagency agreement are normally called laterals by Reclamation in this area and are numbered rather than named. This type of canal will not be justified by Reclamation.
4. Any site specific exceptions for seepage, etc. will have a separate justification discussion.
5. Acreage for continuation for withdrawal will require some judgement. Aliquot parts will make for easier acreage descriptions. Therefore Reclamation will generally base their justification for continuance on nearest 10 acre parcel. However, if very small isolated parcels of public land would be created (less than 40 acres)

Reclamation will justify continuance of withdrawal for 40 acres.

- a. Project surveys were on stationing and not tied into section lines. Therefore, if aliquot part descriptions are not used, we must determine how withdrawals would be displayed on Master Title Plats.

CRITERION H

Activity Planning Areas. These are lands on which planning is completed or ongoing for the above items A through G activities and Reclamation is or will be pursuing legislative authorizations, or there is the likely probability that a non-Federal entity will develop the project within the next 20 years.

Segregation: The lands will be segregated only to the extent to protect the planned activity.

Term: Withdrawals for this purpose shall be for 10 years, or less, as appropriate.

Jurisdiction: Normally Reclamation, however, BLM may retain jurisdiction where Reclamation finds it compatible with their plans.

PROCEDURES FOR IMPLEMENTATION CRITERION H

1. Both agencies will study the Rehabilitation and Betterment (R & B) reports looking at the exact methods, jurisdiction and management needed to satisfy the Fish and Wildlife Service's opinions on wetlands which must be replaced in the R & B project. Reclamation will make justifications on this basis.
2. Reclamation will make justifications for planned activities that meet criteria A through G under Criterion H.

CRITERION I

Leased Lands. Lands which are within an irrigation district which has contractual repayment obligation to the federal Government, and the lands were included in the original project plans as part of the revenue base of the irrigation district to meet its financial obligations.

1. Lands used for grazing and agricultural leases which generate revenues for repayment of a construction loan(s) under the authority of Subsection I of the Fact Finders Act of 1924 (43 U.S.C. 417) will be recommended for withdrawal where this was a consideration in the feasibility study, authorizing legislation, or appropriations act. These are an integral part of the project and are considered part of the contract between the irrigation district and Reclamation.

Segregation: From settlement, sale, location, or entry under the general lands laws, including the United States mining laws (30 U.S.C. Ch. 2), but not leasing under the mineral leasing laws.

Term: These withdrawals will be for the remaining estimated repayment period for the construction, and Rehabilitation and Betterment loans for the reservoir and primary water delivery facilities.

Jurisdiction: Reclamation to ensure these revenues are deposited according to the Reclamation laws.

2. Lands used for revenue generation for purposes other than repayment of construction loan(s), i.e., operations and maintenance, are normally inappropriate for withdrawal recommendation. The sole exceptions where Congress has authorized and appropriated funds for the construction of reclamation project which is not economically viable. In this situation, consideration shall be given to the need for a economic base to satisfy the legislative requirement as determined by a Repayment Capability Analysis prepared by Reclamation. Withdrawals used for this purpose will be terminated at the earliest possible date, without causing severe economic hardship (bankruptcy) on the irrigation district and its members. These withdrawals are an exception to normal legislative and withdrawal practice and, therefore, only exist in a handful of instances. These withdrawals must be closely scrutinized by Reclamation and BLM to ensure they are absolutely necessary.

Segregation: None. These withdrawals only transfer jurisdiction and will not have segregations when the sole purpose for the withdrawal is to ensure revenues generated are controlled by Reclamation laws and deposited in the Reclamation Fund.

Term: Needed withdrawals will be continued for as short a period of time as possible, not to exceed a maximum of 10 years. When the withdrawal is reviewed near the end of the 10 year period under the authority of FLPMA, Section 204(f), the withdrawal may be further extended based on the current Repayment Capability Analysis.

Jurisdiction: Reclamation, however, BLM will retain management of all actions, except that which is generating the revenue.

PROCEDURES FOR IMPLEMENTING I

1. There are no present repayment contracts that incorporate lease revenue.
2. Reclamation will check on potential for repayment contracts on the R & B projects mentioned above.
3. Reclamation will justify planned leased revenue land under Criterion H.



IN REPLY
REFER TO:

United States Department of the Interior
BUREAU OF RECLAMATION
Great Plains Region
Montana Projects Office
P.O. Box 30137
Billings, Montana 59107-0137



JUL 14 1992

MT-423

Memorandum

To: District Manager, Bureau of Land Management,
Lewistown District Office, Lewistown, Montana

From: Project Manager, Billings, Montana

Subject: East Milk River Withdrawal Review (Withdrawal Review)

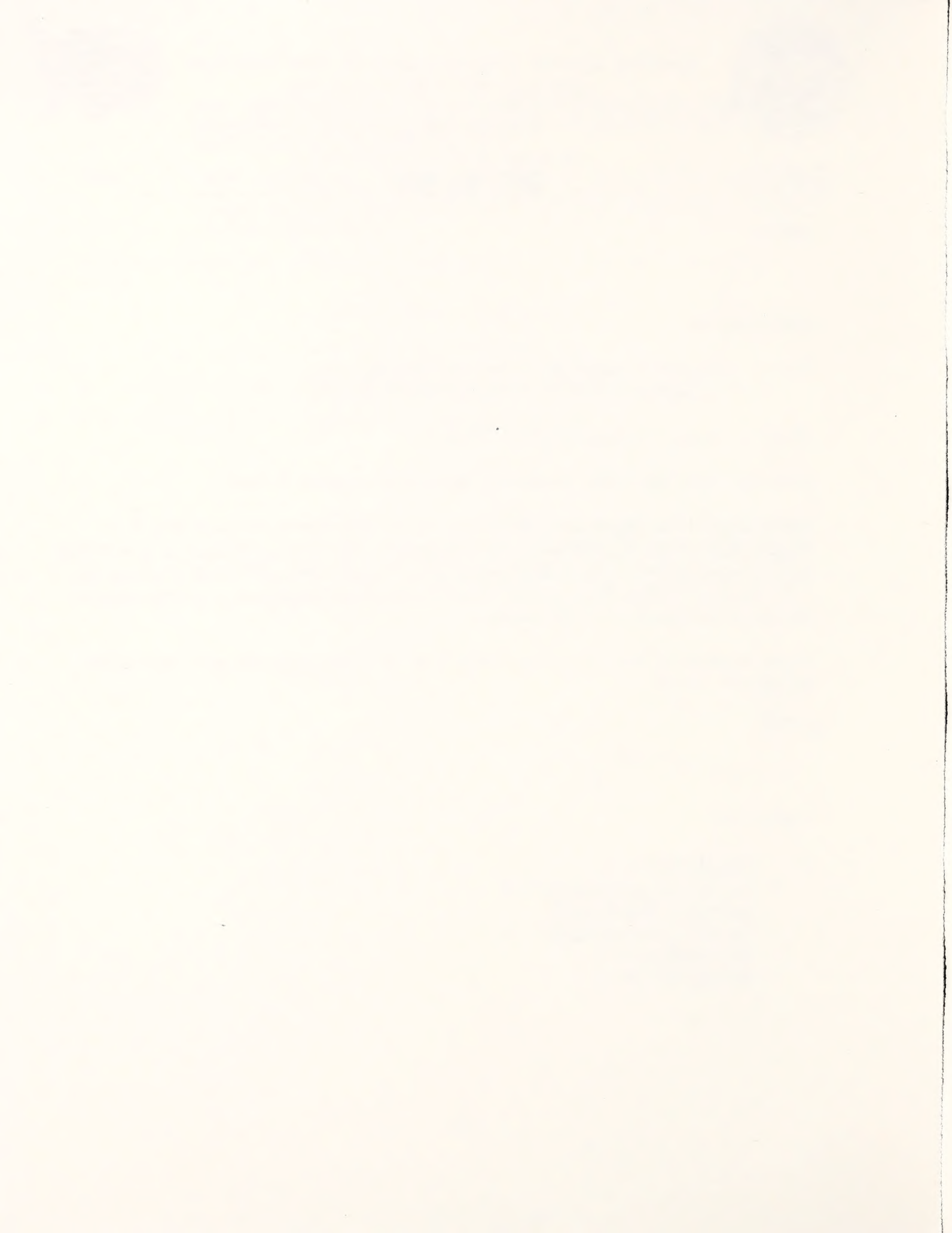
Enclosed are Final Justification Statements for the withdrawal review of Milk River Project lands under the JVP-Resource Management Plan. Also enclosed are a summary table of revoked and retained lands and a copy of memorandum FWE-61130 from the U.S. Fish and Wildlife Service which explains the mitigation process and requirements placed on the Bureau of Reclamation.

Please contact Tim Personius at 657-6202 if you have any questions pertaining to the withdrawal review.

ACTING

Enclosures

cc: State Director
Bureau of Land Management
Attention: Dee Baxter
Granite Tower Building
222 North 32nd
Billings MT 59101



APPENDIX H

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

This appendix provides a comprehensive assessment of the areas nominated by the public and BLM as Areas of Critical Environmental Concern (ACECs) and the evaluation of those nominations. A total of 31 nominations were received (see Table H.1). During the internal review of the preliminary draft RMP/EIS and the public comment period on the draft RMP/EIS BLM received additional ACEC nominations and new information on current nominations. To maintain BLM's planning schedule and commitment to the public we could not include additional nominations to this RMP/EIS. If additional nominations or new information shows a nomination qualifies for further consideration, per the ACEC criteria, it will be considered through an amendment to the Judith Valley Phillips RMP/EIS.

The following additional ACEC nomination were received.

1. Mixed Grass Prairie in north Valley County
2. Saddle Butte in the Little Rocky Mountains
3. Old Scraggy Peak (cultural resources) in the Little Rocky Mountains
4. Little Rocky Mountains.

New information was received and evaluated for the following nominations. The evaluation is included in this Appendix.

1. Joiner Coulee (Nomination #11)
2. Woody Island Coulee (Nomination #12)
3. Mountain Plover Complex (Nomination #20)

ACEC Evaluation Process

Purpose: Provide policy and procedural guidance on identification, evaluation, and designation of ACECs for resource management plans and amendment completion.

Objectives: Designate ACEC. Alert agency of significant values and resources in ACECs which must be accommodated during future actions near or within an ACEC.

Policy: FLPMA requires that priority shall be given to the designation and protection of ACECs. BLM will give precedence to the identification, evaluation, and designation of areas which require "special management attentions".

ACEC Characteristics

Relevance: An area meets the "relevance" criteria if it contains one or more of the following:

1. Significant historic, cultural, or scenic values including rare or sensitive archeological resources and religious or cultural resources important to Native Americans.
2. Fish and wildlife resources including habitat for endangered, sensitive or threatened species, or habitat essential for maintaining species diversity.
3. Natural process or systems including endangered, sensitive, or threatened, or sensitive species; rare, endemic, or relic plants or plant communities which are terrestrial, aquatic, or riparian, or rare geological features.
4. Natural hazards including avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs.

Importance: Value, resource, system, procedures, or hazard described above must have substantial significance and values characterized by one or more of the following.

1. More than locally significant qualities.
2. Qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
3. Recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.
4. Qualities which warrant highlighting to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety or to property.

Areas To Be Considered:

1. Existing ACECs are subject to reconsideration and must be reviewed.
2. Areas recommended for ACEC consideration.
 - a. External Nominations: Any public (group or person) or other agency may nominate. Can be submitted anytime. No formal or special procedures required.
 - b. Internal Nominations: No constraints, except they must appear to meet the relevance and importance criteria.
3. Areas identified at any time through inventory and monitoring.
4. Adjacent designations of other federal and state agencies must be reviewed.

Data On Relevance and Importance:

An interdisciplinary team evaluates each area to determine if it meets both the relevance and importance criteria. Evidence of relevance and importance may be secured from BLM or non-BLM sources, or from professional judgments, written comments and expert opinions, or various listings.

If an area does not meet the criteria, analysis supporting that conclusion is incorporated in the RMP/EIS and the nomination is not considered as a potential ACEC. If an area does meet both the relevance and importance criteria the nomination is a potential ACEC.

TABLE H.1. ACEC NOMINATIONS

<u>Name</u>	<u>Nominated by</u>	<u>Reason</u>	<u>Acres</u>	<u>Relv</u>	<u>Impt</u>	<u>Summary</u>
1) Burnt Lodge WSA	USFWS-CMR	Adjacent to CMR	13,730	Yes	No	Unqualified
2) Two Calf WSA	USFWS-CMR	Adjacent to CMR	15,000	No	No	Unqualified
3) Antelope WSA	USFWS-CMR	Adjacent to CMR	12,350	Yes	No	Unqualified
4) Azure Cave	Dwain Prellwitz Audubon Council	Bat Population	479	Yes	Yes	Qualified
5) Rock Creek (VRA)	Dwain Prellwitz	Wildlife and T&E	12,800	Yes	No	Unqualified
6) Itchpair Slough	Dwain Prellwitz	Wetlands Complex	450	Yes	No	Unqualified
7) Old Scraggy Peak	Dwain Prellwitz	Historic Landmark	2,080	No	No	Unqualified
8) Shed Lake	Dwain Prellwitz	Waterfowl	691	No	No	Unqualified
9) Rock Creek Canyon	Nature Conservancy	Endemic Plant	80	No	No	Unqualified
10) Beaver Creek	Nature Conservancy	Unique Vegetation	3,830	No	No	Unqualified
11) Joiner Coulee	Nature Conservancy	Unique Vegetation	4,640	No	No	Unqualified
12) Woody Island	Nature Conservancy	Unique Vegetation	4,500	No	No	Unqualified
13) Acid Shale-Pine	Nature Conservancy	Unique Vegetation	1,500	Yes	Yes	Qualified
14) Judith Landing	Rod Pratt	Riparian Community	NA	No	No	Unqualified
15) Lidstone Ferry	R. L. Brownson	Family Heritage	NA	No	No	Unqualified
16) Prairie Dog #1	Dwain Prellwitz	Black-Footed Ferret	93,376	Yes	Yes	Qualified
17) Prairie Dog #2	Dwain Prellwitz	Black-Footed Ferret	17,088	Yes	Yes	Qualified
18) Prairie Dog #3	Dwain Prellwitz	Black-Footed Ferret	10,688	No	No	Unqualified
19) Prairie Dog #4	Dwain Prellwitz	Black-Footed Ferret	51,840	No	No	Unqualified
20) Mountain Plover	Dwain Prellwitz	Candidate Species	9,600	Yes	Yes	Qualified
21) Lower Judith River	Audubon Council	Riparian	NA	No	No	Unqualified
22) Anderson Bridge	Wilderness Assoc	Scenic, Wilderness		No	No	Unqualified
23) Square Butte ONA	BLM	Scenic, Wildlife	1,947	Yes	Yes	Qualified
24) Sage Grouse Habitat	BLM	Sage Grouse	NA	No	No	Unqualified
25) Prairie Dog/Ferret	BLM	Black-Footed Ferret	NA	No	No	Unqualified
26) Waterfowl/Wetlands	BLM	Waterfowl	NA	No	No	Unqualified
27) Prairie Riparian	BLM	Riparian	NA	No	Yes	Unqualified
28) Collar Gulch	BLM	Westslope Cutthroat	1,160	Yes	Yes	Qualified
29) Big Bend	BLM	Cultural Resources	38,707	Yes	Yes	Qualified
30) Bitter Creek WSA	BLM	Scenic Values	26,000	Yes	No	Unqualified
31) Moccasins/Judith	BLM	Scenic	4,566	Yes	Yes	Qualified

PUBLIC NOMINATIONS

1. BURNT LODGE WSA ("Larb Hills"): Nominated by USFWS-CMR. The Service has comparable federal land and resource values on the adjacent Charles M. Russell National Wildlife Refuge which the Service manages and does not want jeopardized by non-conforming activities on the nominated BLM-administered area. The visual qualities found on BLM-administered land in this portion of the Missouri River Breaks compliment the visual qualities on the adjoining

CMR National Wildlife Refuge.

Relevance Criteria: This nomination meets Relevance Criteria 1. The Burnt Lodge area (13,700 acres) contains a variety of significant scenic values. A visual resource team completed a 1977 inventory that identified both Class A and B scenic zones within this area. The rugged Badlands terrain with its exposed sandstone, sheer walls, and castle-like formations in a forested landscape presents an exceptional view for the visitor. Class A and B scenic rating and VRM Class II rating were designated in the Missouri Breaks Grazing EIS completed in August 1979.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. The Burnt Lodge WSA contains significant visual qualities but only on a local basis. The landscape features are typical of the Missouri River Breaks.

Summary: The Burnt Lodge ACEC nomination (13,700 acres) meets Relevance Criteria 1 with significant visual values but does not meet any of the Importance Criteria. Burnt Lodge WSA is not recommended for further consideration as an ACEC.

2. TWO CALF WSA: Nominated by USFWS-CMR. Nominated for the same values as the Burnt Lodge WSA.

Relevance Criteria: Does not qualify for any criteria because the essential resources are not present.

Importance Criteria: Does not qualify for any criteria because the essential resources are not present.

Summary: This nomination is a WSA and was recommended by BLM as not suitable for inclusion in the Wilderness System. The area is similar to other Missouri River Breaks habitats. Based on the relevance and importance criteria this nomination is not recommended for further consideration as an ACEC.

3. ANTELOPE CREEK WSA: Nominated by USFWS-CMR. Nominated for the same values as the Burnt Lodge WSA.

Relevance Criteria: This nomination meets Relevance Criteria 1. The Antelope Creek WSA (9,600 acres) possesses significant scenic values. A visual resource team completed an inventory in 1977 that categorized the area as having a Class A scenic value. The area contains excellent visual qualities. The heavily eroded, steep slopes of exposed shale divided by numerous narrow, finger-like tree-covered ridges adds to the view.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. The Antelope Creek WSA possesses significant visual qualities but only on a local basis. The landscape features are typical of the Missouri River Breaks.

Summary: The Antelope Creek WSA nomination (9,600 acres) meets Relevance Criteria 1 with significant visual values. It does not meet any of the Importance Criteria. This nomination is not recommended for further consideration as an ACEC.

4. AZURE CAVE: Nominated by Dwain Prellwitz and the Montana Audubon Council. The primary values for which this cave was nominated are: critical bat hibernaculum of national significance, and its general hazard to public safety.

Relevance Criteria: This nomination meets Relevance Criteria 2 and 3. Azure cave was surveyed in 1979 ("Caves of Montana", N.P. Campbell, 1978. Report available at the Lewistown District Office) by Chester et. al. They identified this as one of two known caves in the Northwest that contains hibernating bats. None of the bat species are known to be rare or endangered but a complete survey of the bats by a professional bat expert was recommended and is needed to assess the significance of the cave. Because of the cave importance as a hibernaculum the report also recommended that entry by the public take place only from June 15 to August 15 each year (Chester et al., 1979).

The cave is hazardous to the general public and only experienced cave explorers should be allowed in it (Chester et al., 1979) by permit.

Importance Criteria: This nomination meets Importance Criteria 1 and 2. The cave has national significance because of the bat hibernaculum. It is one of only two in the Pacific Northwest, and possibly the northern-most hibernaculum in the United States (Chester et al., 1979).

The gate and restrictions that the BLM placed on the cave should be left intact to protect the cave and bat population.

Summary: Azure Cave meets Relevance and Importance Criteria and is recommended for further consideration as an ACEC.

5. ROCK CREEK (Valley County): Nominated by Dwain Prellwitz and the BLM. Resources for which it was nominated are: unique topography found nowhere else in Valley County; outstanding scenic values; falcon nesting habitat for American kestrel, prairie falcon, merlin, and potential peregrine falcon habitat; riparian habitat; ORV damage to trails and slopes; "walk-in" hunting area; golden eagle nesting habitat; potential as a small "Birds of Prey Natural Area"; and trophy mule deer hunting area.

Relevance Criteria: This nomination meets Relevance Criteria 1. The area contains outstanding scenic values. It received a 23 rating of a possible 33 for scenic quality which places it in a Class A category. This is the highest visual rating in the Valley RA.

Importance Criteria: This nomination does not meet any Importance Criteria. The only importance values that could apply are fish and wildlife resources under Criteria 2. Rock Creek possesses potential peregrine falcon habitat, an endangered species. No specific nesting areas or adequate prey base have been identified at this time and the canyon is not currently recommended for peregrine reintroduction. Rock Creek, like other drainages in northern Valley County, supports a wide variety of species.

Two other nearby areas have similar scenic values: Eagle Nest Coulee and Frenchman Creek. The Rock Creek Canyon area is considered locally significant.

Summary: The Rock Creek Canyon area meets the Relevance Criteria 1 with significant scenic values and wildlife resources, but is considered only locally important. It does not meet both Relevance and Importance criteria and is not recommended for further consideration as an ACEC.

6. ITCHPAIR SLOUGH: Nominated by Dwain Prellwitz for fish and wildlife resources. Grable Lake and Itchpair Slough are part of a significant waterfowl complex of 30 reservoirs and numerous potholes located in northwestern Valley County. Itchpair Slough occupies approximately 450 acres administered by BLM. The area is critical habitat for waterfowl and shorebirds.

Relevance Criteria: Does not qualify for any criteria because the essential resources are not present.

Importance Criteria: Does not qualify for any criteria because the essential resources are not present.

Summary: The major benefits of designation would be to provide pairing and nesting habitat for declining waterfowl numbers and protect any important cultural sites. Itchpair Slough does not produce a significant number of waterfowl to warrant protection under an ACEC designation. This nomination is not recommended for further consideration as an ACEC.

7. OLD SCRAGGY PEAK: Nominated by Dwain Prellwitz for its prominence in the Little Rocky Mountains.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. Old Scraggy Peak does not contain any historic, cultural, or scenic values; habitat for endangered, sensitive, or threatened fish and wildlife species; unique natural plant process or systems; or natural hazards beyond local significance.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. Old Scraggy Peak does not contain any qualities that are fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened or vulnerable to adverse change; needing protection to satisfy national priority concerns or to carry out the mandates of FLPMA; does not satisfy public or management concerns about safety and public welfare or contain any significant hazards to public safety. Old Scraggy Peak has local significance being the highest peak in Phillips County.

Summary: Old Scraggy Peak does not meet any relevance and importance criteria. There are no known significant historic, cultural, or scenic values, habitat for endangered, sensitive or threatened wildlife species, unique natural systems,

or natural hazards associated with the peak. It has local significance. This nomination is not recommended for further consideration as an ACEC.

8. SHED LAKE: Nominated by Dwain Prellwitz. Nominated because it is the most productive waterfowl area in Phillips County.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. Shed Lake is a natural lake that is a very productive waterfowl area. A Fish and Wildlife Service biologist in the early 1970's stated that Shed Lake on a per-acre basis, is the most productive waterfowl area in Phillips County. The lake is not unique as a natural waterfowl production area. The lake does not contain historic, cultural, or scenic values; habitat for endangered, sensitive or threatened species; unique natural systems; or natural hazards beyond local significance.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. Shed Lake is locally significant. The lake does not contain qualities that are significant, unique, endangered, rare, threatened or vulnerable. The area does not contain any significant hazards to public safety.

Summary: Shed Lake does not meet the relevance and importance criteria as an ACEC nomination. This nomination is not recommended for further consideration as an ACEC.

9. ROCK CREEK CANYON (Snowy Mountains): Nominated by The Nature Conservancy. Nominated for its unique and rich plant communities interspersed with limestone outcrops.

Relevance Criteria: This nomination does not meet Relevance Criteria because the essential resources are not present.

Importance Criteria: This nomination does not meet Importance Criteria because the essential resources are not present.

Summary: The vegetative species list provided by The Nature Conservancy for Rock Creek Canyon was used as a basis for additional inventory for this botanical community by BLM staff. Half-Moon Canyon on the Lewis and Clark National Forest on the east side of the Big Snowies has similar botanical communities. This botanical community is not unique to Rock Creek. The majority of the vegetation type is found on Lewis and Clark National Forest.

The nominated area, although not recommended as an ACEC, will not be logged, the land will remain in federal ownership, and it will not be leased for livestock grazing. This nomination is not recommended for further consideration as an ACEC.

10. BEAVER CREEK PONDS: Nominated by The Nature Conservancy. Nominated for its unique aquatic plant communities.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. The Beaver Creek Ponds do not contain any historic, cultural, or scenic values; habitat for endangered, sensitive, or threatened fish and wildlife species; unique natural plant process or systems; or natural hazards beyond local significance. These ponds are common from the Fort Belknap Indian Reservation to Beaver Creek throughout the bentonite area of south Phillips County. Plants identified by The Nature Conservancy are not listed as endangered, threatened, or sensitive species by the Fish and Wildlife Service or the State.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. The Beaver Creek Ponds do not contain qualities that are fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened or vulnerable to adverse change; needing protection to satisfy national priority concerns or to carry out the mandates of FLPMA; does not satisfy public or management concerns about safety and public welfare or contain any nationally significant hazards to public safety. These ponds are ephemeral. The BLM has developed many of the ponds by placing permanent pits and waterfowl nesting islands in the basins.

Summary: The Beaver Creek Ponds do not meet the relevance and importance criteria. These ponds are common from the Fort Belknap Indian Reservation to Beaver Creek throughout the bentonite area of south Phillips County. Plant species identified by The Nature Conservancy are not endangered, threatened, or sensitive. These are ephemeral ponds. This nomination is not recommended for further consideration as an ACEC.

11. JOINER COULEE: Nominated by The Nature Conservancy. This area was nominated for its unique aquatic botanical communities.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. Joiner Coulee does not contain significant historic, cultural, or scenic values; habitat for endangered, sensitive, or threatened fish and wildlife species; unique natural plant process or systems; or natural hazards. The Joiner Coulee potholes are common in north Phillips County. The plants that The Nature Conservancy has identified are not listed as endangered, threatened, or as candidates species by the Fish and Wildlife Service or the State.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. Joiner Coulee does not contain any qualities that are significant, fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened or vulnerable to adverse change; needing protection to satisfy national priority concerns or to carry out the mandates of FLPMA; does not satisfy public or management concerns about safety and public welfare or contain any nationally significant hazards to public safety. Joiner Coulee is not unique to the area.

Summary: Joiner Coulee does not meet the relevance and importance criteria. No plants identified by The Nature Conservancy are considered endangered, threatened, or sensitive. This nomination is not recommended for further consideration as an ACEC.

12. WOODY ISLAND COULEE: Nominated by The Nature Conservancy. Nominated for its unique botanical communities.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. Woody Island Coulee does not contain any significant historic, cultural, or scenic values; habitat for endangered, sensitive, or threatened fish and wildlife species; unique natural plant process or systems; or natural hazards. The species of plants that the Nature Conservancy has identified are not listed as endangered, threatened, or sensitive species by the Fish and Wildlife Service or the State.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. The Woody Island Coulee area does not contain any qualities that are significant, fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened or vulnerable to adverse change; needing protection to satisfy national priority concerns or to carry out the mandates of FLPMA; does not satisfy public or management concerns about safety and public welfare or contain any nationally significant hazards to public safety. The area is unique in that it possesses habitat for a potentially large number of raptors. The area is locally significant.

Summary: Woody Island Coulee does not meet the relevance and importance criteria. This nomination is not recommended for further consideration as an ACEC.

13. ACID SHALE-PINE FOREST: Nominated by The Nature Conservancy. Nominated for its unique and endemic botanical community and fragile soils.

Relevance Criteria: The nomination qualifies for Relevance Criteria 3 because the War Horse area is an unique ecosystem which is composed primarily of endemic terrestrial plants.

Importance Criteria: The War Horse area qualifies for Importance Criteria 1 and 2 and, is a natural ecosystem which has an exemplary and unique plant community and fragile soils.

Summary: This unique plant community is limited to relatively few acres in the planning area. This nomination qualifies for further consideration as an ACEC.

14. JUDITH LANDING CAMPGROUND: Nominated by Mr. Rod Pratt for its remnant riparian community along the Missouri River.

Relevance Criteria: Does not qualify for any criteria.

Importance Criteria: Does not qualify for any criteria.

Summary: This is a private campground, leased by MDFWP during the summer, and administered by agreement by BLM. It is privately owned and can not be further considered as a potential ACEC.

15. LIDSTONE FERRY SITE: Nominated by Mrs. Ramona Lidstone Brownson.

Relevance Criteria: Does not qualify for any criteria.

Importance Criteria: Does not qualify for any criteria.

Summary: This nomination was not carried forward in the evaluation process because of the private ownership involved in the nomination area. The south side of the ferry operation is on private land, and the north is on BLM land.

16. PRAIRIE DOG COMPLEX No. 1: Nominated by Dwain Prellwitz. Nominated for its extremely diverse wildlife populations including candidate ESA species mountain plover, and ferruginous hawk. It would serve as potential black-footed ferret and swift fox reintroduction habitat.

Relevance Criteria: This nomination meets Relevance Criteria 2. Complex 1 is an important group of prairie dog colonies that contain sensitive wildlife species such as the mountain plover, burrowing owl and the ferruginous hawk. This area along with colonies on the CMR may be used to introduce the swift fox. This complex and another (Complex 2) are being considered for the reintroduction of the black-footed ferret. This area has national significance because it is only one of about 10 sites that are being considered for the reintroduction of the ferret. The Complex is 93,376 acres.

Importance Criteria: This nomination meets Importance Criteria 1 through 3. This complex is unique because it does contain a large number of burrowing owls, mountain plovers, ferruginous hawks and about 70 other wildlife species (Reading et al, 1989). It also is part of the area identified for the reintroduction of the black-footed ferret by the Montana Black-footed Ferret Working Group. This area is nationally significant for the potential reintroduction of the black-footed ferret.

Summary: Complex 1 meets the relevance and importance criteria. This complex is unique because it contains a large number of sensitive and ESA wildlife (burrowing owls, ferruginous hawks, and mountain plover). It is habitat for about 75 wildlife species including those identified above. This nomination qualifies for further consideration as an ACEC and will be addressed in the Prairie Dog and Black-Footed Ferret Management issue in this RMP/EIS.

17. PRAIRIE DOG COMPLEX No. 2: Nominated by Dwain Prellwitz. Nominated for same wildlife values as for No. 1 above.

Relevance Criteria: This nomination meets Relevance Criteria 2. Complex 2 is an important group of prairie dog colonies that contain sensitive wildlife species such as the mountain plover, burrowing owl and the ferruginous hawk. The area along with colonies on the CMR may be used to introduce the swift fox. This complex and another (Complex 1) are being considered for the reintroduction of the black-footed ferret. This area has national significance because it is only one of about 10 sites that are being considered for the reintroduction of the ferret. This Complex is 17,088 acres.

Importance Criteria: This nomination meets Importance Criteria 1 through 3. Complex 2 is unique because it does contain a large number of burrowing owls and mountain plovers and ferruginous hawks and about 70 other wildlife species (Reading et al, 1989). It also is part of the area identified of the reintroduction of the black-footed ferret by the Montana Black-footed Ferret Working Group.

Summary: Complex 2 meets the relevance and importance criteria. This nomination qualifies for further consideration as an ACEC and will be addressed in the Prairie Dog and Black-Footed Ferret Management issue in this RMP.

18. PRAIRIE DOG COMPLEX No. 3: Nominated by Dwain Prellwitz. Nominated for the same wildlife values as Complex 1.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. Complex 3 is mostly on the Fort Belknap Indian Reservation. Very few prairie dog colonies are found outside of the reservation. Most of these colonies do not contain sensitive wildlife species such as the mountain plover, burrowing owl and the ferruginous hawk. However,

this complex is being considered for the reintroduction of the black-footed ferret. Because most of this complex is on the reservation it should be evaluated by the Tribal Government and not by the BLM. Land outside the reservation contains no significant historic, cultural, or scenic values; habitat for endangered, sensitive, rare or threatened species; unique natural systems; or natural hazards. This Complex is 10,688 acres.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. The BLM has very little information on sensitive species in this complex. Very few observations have been made of the mountain plover, burrowing owl or ferruginous hawk. The area does not contain any qualities that are significant, unique, endangered, rare, threatened or vulnerable. The area does not contain any significant hazards to the public safety.

Summary: Complex 3 does not meet the relevance and importance criteria. This complex is largely on the Fort Belknap Indian Reservation. Few prairie dog colonies are found outside the reservation. These colonies do not contain the sensitive wildlife species as do complexes 1 and 2. This complex is being considered for reintroduction of the black-footed ferret. The BLM-administered land pattern is very broken, and has a bearing on possible wildlife management as for sensitive species. There are few data for the area, and few observations of sensitive species have been made. This nomination is not recommended for further consideration as an ACEC.

19. PRAIRIE DOG COMPLEX No. 4: Nominated by Dwain Prellwitz. Nominated for the same wildlife values as Complex 1.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. Complex 4 is a very small complex of prairie dog colonies that contain sensitive wildlife species such as the mountain plover, burrowing owl and the ferruginous hawk. Only a small number of observations of the above sensitive species have been recorded. Most of the prairie dog colonies are on private or state land and are being actively poisoned. The area does not contain any significant historic, cultural, or scenic values; habitat for endangered, sensitive, rare, or threatened species; unique natural systems; or natural hazards. There is nothing that is unique for special management of the area. This Complex is 51,840 acres.

Importance Criteria: This nomination does not meet Importance Criteria 1 through 5. This complex does not contain any qualities that are significant, unique, endangered, rare, threatened or vulnerable. The area does not contain any significant hazards to public safety.

Summary: This complex is largely on the Fort Belknap Indian Reservation. Few prairie dog colonies are found outside the reservation. These colonies do not contain the sensitive wildlife species as do complexes 1 and 2. This complex is being considered for reintroduction of the black-footed ferret. The BLM-administered land pattern is very broken, and has a bearing on possible wildlife management as for sensitive species. There are few data for the area, and few observations of sensitive species have been made. Complex 4 does not meet the relevance and importance criteria. It does not qualify for further consideration as an ACEC.

20. MOUNTAIN PLOVER COMPLEX: Nominated by Dwain Prellwitz. Nominated for the mountain plover (ESA candidate specie) habitat values.

Relevance Criteria: This area meets Criteria 2. The area provides habitat for the mountain plover and is not associated with black-tailed prairie dogs. This is the natural habitat of the plover and not biologically created by prairie dogs. The plover is a species of special concern to the Montana Department of Fish, Wildlife and Parks. It is a category 1 species under the Endangered Species Act and is being considered for listing by the U.S. Fish and Wildlife Service (January, 1992). This is one of the three documented breeding sites in Montana and may represent the second major population in the State. Knowles, 1991, has reviewed the record of mountain plover sightings in this area and has found 123 observations of 314 birds since 1978.

Importance Criteria: The area meets Criteria 1 and 3. This habitat is important to the plover and needs to be maintained. The area is unique because it contains natural habitat of the mountain plover. It is one of the last areas of native plover habitat in the United States. It is more than locally significant to the survival of the plover. The area would qualify under Sec 102.(a)(8) of FLPMA as an area to be managed that will protect the quality of scientific...values and provide food and habitat for fish and wildlife.

Summary: The Mountain Plover Complex is recommended for further consideration as an ACEC. This nomination will be addressed as an amendment to this RMP/EIS.

21. **LOWER JUDITH RIVER:** Nominated by the Montana Audubon Council for its unique riparian and wetlands botanical communities.

Relevance Criteria: This nomination does not qualify for any criteria.

Importance Criteria: This nomination does not qualify for any criteria.

Summary: No criteria are met because this river reach is about 95 percent private land, and is not recommended for further consideration as an ACEC.

22. **ANDERSON BRIDGE:** Nominated by Montana Wilderness Association. Nominated for its significant geological features including dikes, badlands, and canyons; outstanding opportunities for solitude and primitive recreation; and excellent back-country hunting, specifically for mule deer.

Relevance Criteria: This nomination does not meet any criteria. This area is average to below average wildlife habitat. There are no known unique vegetation communities. Geologic values area similar to those up and downstream on the Judith as well as the Missouri River. The area is Class B scenic quality, however the area is primarily Judith River Breaks landscapes and lacks the additional water-oriented Judith River landscape attributes because there is no federal land along the Judith River. This is a limiting factor.

Importance Criteria: This nomination does not meet any criteria. None of the subject area resources are of more than local importance, nor are they considered subject to jeopardy under current uses.

Summary: Based on the above determinations it has been concluded that the BLM land in this nomination does not meet the relevance and importance criteria necessary for further consideration as an ACEC.

INTERNAL NOMINATIONS

23. **SQUARE BUTTE ONA:** Mandatory ACEC review by BLM.

Relevance Criteria: Relevance Criteria 1, 2, and 3 apply. The area is unique and diverse and offers the opportunity to observe mountain goats, elk, mule deer, prairie falcons and a host of other wildlife species.

There are a number of vision quest sites on the summit of Square Butte which were used by Native Americans for religious purposes. The slopes and outcrops probably contain prehistoric and historic graves. These cultural resources are considered sacred by modern Native Americans in the region. The BLM should consider Square Butte as a potential AIRFA situation.

Burials and vision quest sites are not common in the region. The sites are considered sensitive by traditional religious leaders of Native Americans.

Square Butte contains shonkinite a porphyritic igneous rock unique to Montana.

Importance Criteria: Importance Criteria 1, 2 and 3 apply. This site and its resources meet the first three Importance Criteria.

In addition to non-wildlife values, e.g., geologic, hikers may see elk, mountain goat and more common wildlife such as mule deer. This makes Square Butte a unique experience.

Burials and vision quest sites are not common in the region. The sites are considered sensitive by traditional Native American religious leaders. Square Butte contains shonkinite a porphyritic igneous rock unique to Montana.

Summary: Square Butte is recommended for further consideration as an ACEC.

24. SAGE GROUSE HABITAT: Nominated by the BLM. Nominated as representation of the excellent sage grouse habitat in this region and Montana.

Relevance Criteria: Does not meet any Relevance Criteria because a specific geographic nomination area was not identified and the essential resources were not present.

Importance Criteria: No Importance Criteria apply because a specific geographic nomination area was not identified and the essential resources were not present.

Summary: Central and eastern Montana has some of the highest quality sage grouse habitat in the world. Because of its abundance in Montana and because it is felt that sage grouse are adequately protected by resource management, this area is not recommended for further consideration as an ACEC.

25. PRAIRIE DOG/BLACK-FOOTED FERRET/SWIFT FOX AREA: Nominated by the BLM. Nominated to identify and designate a habitat which can support these species after reintroduction.

Relevance Criteria: No criteria apply because no specific geographic nomination area was identified and the essential resources are not present.

Importance Criteria: No criteria apply because no specific geographic nomination area was identified and the essential resources are not present.

Summary: Prairie Dog Complexes No. 1 and 2 fully meet these standards and can be identified as meeting the above nomination objectives. Areas that biologically qualify for this unique habitat are recommended for further consideration as an ACEC.

26. WATERFOWL/WETLANDS: Nominated by the BLM. Nominated to enhance and preserve a major representative waterfowl wetland complex.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. No specific geographic area was presented for the nomination.

B. Importance Criteria: The Prairie Pothole Region of North America is a nationally significant waterfowl production area. The area is unique to the BLM because of the lack of pothole modification or destruction. No specific geographic area was presented for the nomination. At this time the nomination does not meet the importance criteria.

Summary: The waterfowl/wetlands does not meet relevance and importance criteria. It is not recommended for further considered as an ACEC. Beaver Creek Ponds, Itchpair Slough, and Shed Lake were nominated, evaluated, and found unqualified. These three wetlands are identified with this nomination and represent the objectives.

27. PRAIRIE RIPARIAN AREA: Nominated by the BLM. Nominated to identify and manage a representative prairie riparian ecosystem.

Relevance Criteria: This nomination does not meet Relevance Criteria 1 through 4. The Riparian nomination does not have a specified boundary to evaluate.

Importance Criteria: This nomination meets Importance Criteria 1 through 3. The prairie riparian region is a nationally significant vegetation resource for both plant and wild life. Riparian habitat has been a nationally recognized issue for decades. The riparian vegetation is a fragile, irreplaceable and unique resource that needs to be managed to insure its long-term presence. No site specific geographic area for the nomination was identified.

Summary: The Prairie Riparian Area should not be carried forward as an ACEC nomination.

28. COLLAR GULCH: Nominated by the BLM. Nominated for its unique and critically important aquatic habitat

supporting a viable population of a pure strain of westslope cutthroat trout.

Relevance Criteria: Relevance Criteria 2 applies. Presence of the westslope cutthroat trout which is a Species of Special Concern (Class A) by the Montana Department of Fish, Wildlife and Parks. Because of habitat loss and genetic dilution, pure populations of westslope cutthroat are becoming rare.

Importance Criteria: Importance Criteria 2 applies. Because genetic variation in westslope cutthroat trout is contained between populations instead of within populations, this population is rare, sensitive, irreplaceable, unique, threatened and vulnerable to adverse change. Because of the impacts on water quality from mining the health of trout may be in jeopardy.

The historic range of the westslope cutthroat trout in Montana was conservatively estimated at 25,547 stream kilometers, 44.7% of this were east of the Continental Divide (Likness & Graham 1988). In 1984, a status review of westslope cutthroat trout determined that 384.2 stream kilometers, 3.4% of the historic range, were inhabited by the westslope cutthroat trout east of the Continental Divide (Liknes 1984). However, only 14.1 stream kilometers were known to contain genetically pure populations.

Summary: The nomination is recommended for further consideration as an ACEC.

29. BIG BEND OF THE MILK RIVER: Nominated by the BLM. Nominated for its high density and diverse cultural resources with the objective of designating a representative cultural and historic site.

Relevance Criteria: This nomination meets Relevance Criteria 1 through 4. The Big Bend of the Milk River contains several significant cultural resources of national, regional and local importance. In particular, two archaeological sites have been nominated to and are currently listed on the National Register of Historic Places. These include the Henry Smith Buffalo Jump Site and the Beaucoup Site which represents a Besant and Avonlea Phase occupation/bison kill site.

Importance Criteria: This nomination meets Importance Criteria 1 through 3. The Big Bend of the Milk River contains known qualities that are nationally significant, fragile, sensitive, rare, irreplaceable, exemplary, unique, or vulnerable to adverse change; needing protection to satisfy national priority concerns or to carry out the mandates of FLPMA.

The area is highly significant to the national archaeological community and should be considered significant at the national level, regional and local levels. Several authors have suggested that the Avonlea Phase represents the commencement of the common use of the bow and arrow rather than the assumed former throwing stick or atlatl and dart as a hunting weapon. The entire area of the Big Bend of the Milk River bears extensively on this important question. The probability that this important question can be resolved by a research-oriented management strategy of carefully selected sites in this area is very high.

Many other research concerns including but not limited to; relative and absolute dating of sequences of occupations, paleoenvironmental reconstruction, land use, settlement patterns, non-game resource utilization, lithic tool manufacturing methods, and housing types and changes through time are all related within the context of the Big Bend area. Based completely on the research potential remaining in the Big Bend area, the entire area should be considered to be rare, and completely irreplaceable. The site is located in a fragile, precarious physical environment and situated on and in moderate to steep slopes consisting of soils that are easily eroded. The location is well known to local artifact collectors. These individuals have vandalized portions of the area, thus endangering the value of the entire area by destroying part of the resource, which is already threatened by natural forces of erosion. The area is thus extremely vulnerable to continued adverse effect.

The central areas of the complex have been nominated to the National Register and were listed on December 20, 1978. Since the central portions of the area already listed, establishment of an area encompassing additional cultural resources of added significance, would increase the total value of the area. For these reasons, the area warrants additional protection.

Summary: Big Bend of the Milk River should be considered further as an ACEC for cultural values.

30. BITTER CREEK WSA Nominated by the BLM. The benefits of an ACEC designation would be to maintain the

significant aesthetic (visual) qualities found in the Bitter Creek watershed.

Relevance Criteria: This nomination meets Relevance Criteria 1. An area of 26,000 acres contains significant scenic values. A visual resource team conducted an inventory in 1979 that identified both Class A and Class B scenery visual ones. Wave-like formations of sand and shale referred to as "blow-out" areas and pockets of aspen groves contributed to these ratings in this Northern Plains Physiographic Region. The Eagles Nest Coulee area which is similar to the Rock Creek Canyon and Frenchman Creek scenic zones to the west is included in this acreage.

Importance Criteria: This nomination does not meet any Importance Criteria. The scenic qualities are outstanding on a local basis but are not considered significant at the regional or national level.

Summary: The Bitter Creek ACEC nomination (26,000 acres) meets Relevance Criteria 1 with significant scenic values but is determined to possess visual quality only at a local level. It does not meet any Importance Criteria. Bitter Creek is not recommended for further consideration as an ACEC.

31. SOUTH MOCCASINS-JUDITH MOUNTAINS SCENIC AREA Nominated by the BLM to protect the scenic qualities of the visual resources in the Judith and South Moccasin Mountains.

Relevance Criteria: This nomination meets Relevance Criteria 1. Significant scenic values are found in an area that includes 4,566 acres of BLM land in the Judith and South Moccasin Mountains. The Class "B" scenic category and VRM Class II is indicative of the excellent scenic quality of the area. The relevance of the scenic values is increased by the occurrence of scenic impacts in neighboring mountain ranges. This area is the dominant scenic feature on the landscape and can be readily seen from Lewistown and Highways US 191 and 87.

Importance Criteria: This nomination meets Importance Criteria 1 and 2. The scenic values of the Judith and South Moccasin Mountains have regionally significant qualities. This area is the last outlying forested mountain range before entering the Great Plains Physiographic Region as you travel east. Recreation use data indicates it is important to the tourist traveling through the area as well as to recreational services in nearby communities. The scenic qualities are used in their marketing efforts such as videos, brochures, and newspapers.

The scenic quality of the area is vulnerable to adverse change. The VRM Class II rating identifies the sensitive quality of the scenic values as well as their importance in resource protection. The objective of this visual standard is to retain the existing character of the landscape and require that any changes in the basic elements (form, line, color and texture) not evident to the observer.

Summary: Both Relevance and Importance Criteria are met and it should be considered further as an ACEC.

APPENDIX I

WILD AND SCENIC RIVER EVALUATION

BLM has identified and evaluated river segments within the planning area in order to determine their potential inclusion in the National Wild and Scenic Rivers System per Section 5(d) of the Wild and Scenic Rivers Act of 1968 (WSRA).

The river study process follows a three-step assessment: 1) eligibility, 2) tentative classification of rivers found to be eligible, and 3) a determination of suitability.

Eligibility

The first step is determination of eligibility. The eligibility of a river is determined by applying the criteria in Sections 1(b) and 2(b) of the WSRA, as interpreted by the USDI-USDA Guidelines (47 FR 39454). To be eligible for inclusion, a river must be "free-flowing" and, with its adjacent land area, must possess one or more "outstandingly remarkable" values. Free-flowing is defined as existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. For any river segment to be eligible one or more of the following values within the river area must be outstandingly remarkable: scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values.

Classification

The second step is potential classification based on the condition of the river and the adjacent lands. Section 2(b) of the WSRA specifies three classification categories (wild, scenic, and/or recreational) for eligible rivers. Classifying a river as either wild, scenic and/or recreational provides a general administrative categorization tool for interim management. Once a river segment is determined eligible and the appropriate classification determined, it must be afforded adequate interim protection until a final decision is reached on suitability and designation.

Suitability

The third step is determination of suitability. This step provides the basis for the decision to recommend designation or nondesignation.

Rivers and Streams Evaluated in the Planning Area

An interdisciplinary team from the Judith, Valley and Phillips Resource Areas reviewed 187 rivers and streams within the planning area for free-flowing and outstandingly remarkable values. Of these, 182 were free-flowing but did not possess outstandingly remarkable values and 4 were neither free-flowing or possessed outstandingly remarkable values (see Table I.1). One segment of the Judith River was determined to be both free-flowing and possess outstandingly remarkable values (see Attachment I.1). Additional information on the evaluation is available in the Lewistown District and Resource Area Offices.

Figure I.1 Judith River - Ming Coulee to Anderson Bridge.

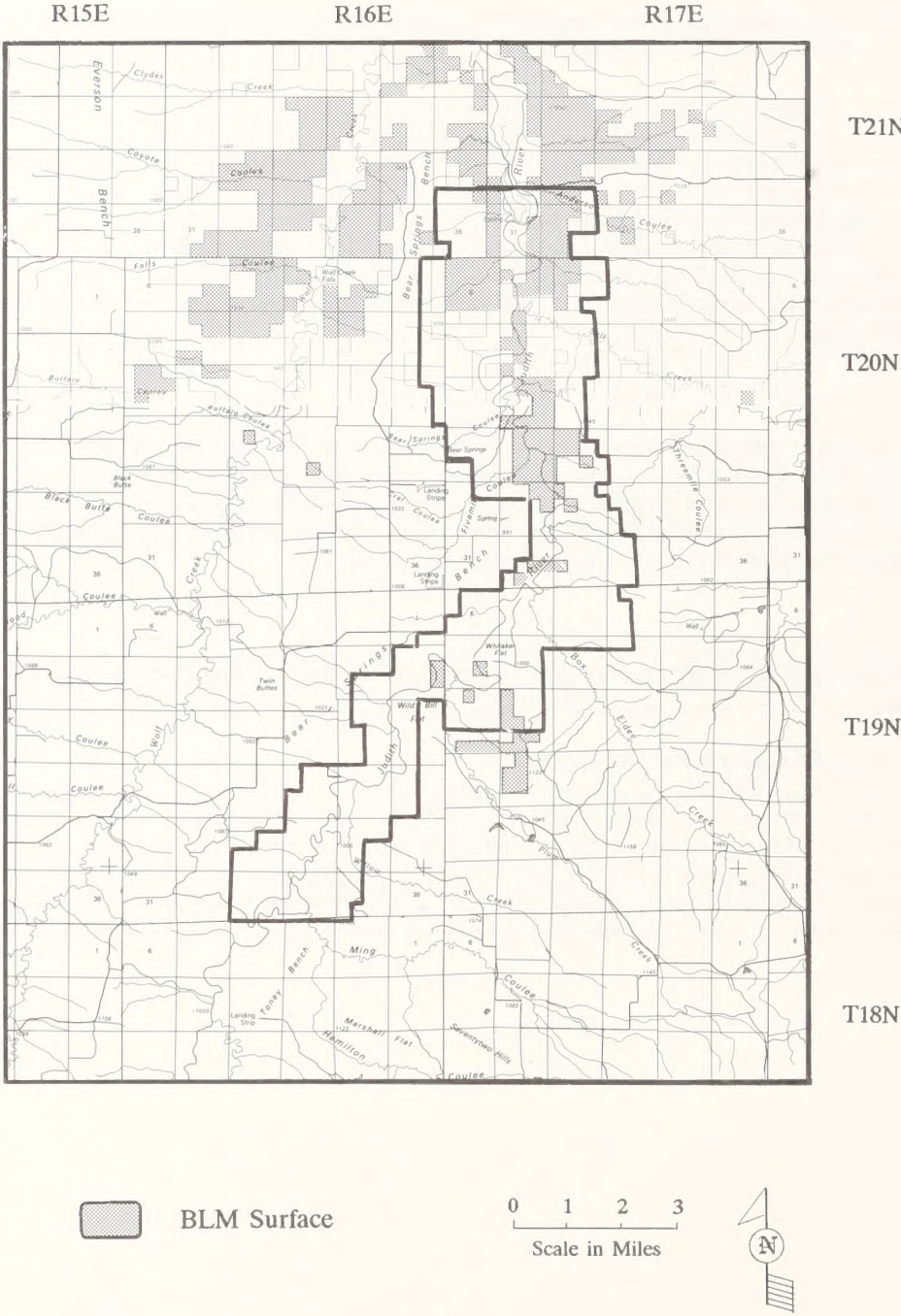


TABLE I.1
RIVERS AND STREAMS EVALUATED FOR
FREE-FLOWING AND OUTSTANDINGLY REMARKABLE VALUES

Judith Resource Area

Stream Name	TWN	RNG	SECT	Total Miles	BLM Miles	% BLM	Free Flow	Outstd Values
ARMELLS CREEK	21N	22E	24	50.2	14.0	28	N	N
ARROW CREEK	19N	12E	31	59.5	5.0	8	Y	N
BIGGETT COULEE	17N	29E	35	6.0	2.5	41	Y	N
BLACKTAIL CREEK	14N	22E	33	10.4	0.3	3	Y	N
BOX ELDER CREEK	16N	26E	35	59.0	11.0	18	Y	N
BUFFALO CREEK	15N	26E	6	9.5	3.0	31	Y	N
CAT CREEK	15N	30E	29	16.1	3.0	17	Y	N
COFFEE CREEK	20N	14E	5	24.0	1.3	5	Y	N
COLLAR GULCH	17N	20E	32	11.2	1.8	16	Y	N
COTTONWOOD CREEK (ARROW CREEK)	19N	12E	23	10.0	1.3	13	Y	N
COTTONWOOD CREEK (MUSSELSHELL)	16N	29E	18	14.2	10.0	70	Y	N
CUTBANK CREEK	22N	18E	35	13.2	0.5	4	Y	N
DOG CREEK	22N	18E	20	49.1	14.0	26	Y	N
DOVETAIL CREEK	18N	29E	30	22.5	5.8	26	Y	N
DRAG CREEK	19N	29E	31	12.6	6.1	48	Y	N
DRY WOLF CREEK	15N	11E	31	10.2	0.5	5	Y	N
DURFEE CREEK	12N	22E	24	6.5	0.5	8	Y	N
FORDS CREEK	16N	23E	30	30.5	7.0	23	Y	N
HIGHWOOD CREEK	22N	6E	35	31.1	0.1	1	Y	N
JUDITH RIVER	23N	16E	26	104.0	8.0	8	Y	Y*
LIMEKILN CANYON	16N	19E	17	7.0	0.8	11	Y	N
LITTLE BOX ELDER CREEK	16N	23E	17	15.0	4.0	27	Y	N
LITTLE OTTER CREEK	16N	8E	26	15.0	0.5	1	Y	N
MING COULEE	18N	17E	13	10.0	0.3	1	Y	N
MURPHY COULEE	20N	21E	20	14.0	2.0	14	Y	N
N FK FLATWILLOW CREEK	12N	20E	10	18.0	0.3	1	Y	N
NEBEL COULEE	16N	9E	31	6.0	0.8	13	Y	N
O HANLON COULEE	24N	9E	11	5.5	0.3	5	Y	N
PIKE CREEK	13N	25E	33	11.0	5.0	45	Y	N
ROCK CREEK	13N	17E	25	25.0	0.3	1	Y	N
S FK FLATWILLOW CREEK	12N	21E	11	17.5	1.3	7	Y	N
CROOKED CREEK	20N	29E	29	67.0	17.0	25	Y	N
SALT CREEK	18N	18E	18	26.0	0.1	1	Y	N
SAND CREEK	21N	24E	29	16.0	5.0	31	Y	N
SHONKIN CREEK	24N	9E	17	49.0	0.2	1	Y	N
WARM SPRINGS CREEK	16N	19E	13	35.0	0.2	1	Y	N
WOLF CREEK	21N	16E	34	77.0	0.2	1	Y	N
YELLOW WATER CREEK	13N	25E	17	29.0	2.5	9	N	N
YOGO CREEK	13N	11E	27	17.0	0.5	3	Y	N

*Note: One segment of the Judith River from Ming Coulee to Anderson Bridge was found eligible. See Attachment I.1 for eligibility and suitability determinations.

Valley Resource Area

Stream Name	TWN	RNG	SECT	Total Miles	BLM Miles	% BLM	Free Flow	Outstd Values
ANTELOPE CREEK	29N	35E	34	13.0	1.0	8	Y	N
WILLOW CREEK	26N	37E	36	38.5	25.5	66	Y	N
BRAZIL CREEK	28N	36E	20	19.0	6.7	35	Y	N
BUGGY CREEK	31N	38E	2	21.3	4.3	20	Y	N
CHERRY CREEK	30N	39E	15	18.8	1.8	10	Y	N
POPLAR RIVER	36N	42E	2	12.0	0.3	3	Y	N
EAGLES NEST COULEE	33N	37E	20	11.0	7.0	64	Y	N
FRENCHMAN CREEK	35N	35E	31	2.0	0.2	10	Y	N
LARB CREEK	28N	34E	25	35.0	11.0	31	Y	N
MILK RIVER	29N	38E	14	110.0	1.0	1	N	N
PORCUPINE CREEK	30N	41E	21	43.0	1.0	2	Y	N
ROCK CREEK	35N	36E	27	55.0	18.7	34	Y	N

Phillips Resource Area

Stream Name	TWN	RNG	SECT	Total Miles	BLM Miles	% BLM	Free Flow	Outstd Values
ALBERT COULEE	27N	33E	35	7.9	2.7	34	Y	N
ALDER CREEK	25N	24E	13	15.6	3.7	24	Y	N
ALKALI COULEE	28N	30E	33	5.4	3.1	58	Y	N
ALKALI CREEK	25N	29E	01	18.4	2.9	16	Y	N
ANTELOPE CREEK	24N	23E	27	7.2	7.0	97	Y	N
ARMSTRONG-MILLAR-COULEE	27N	31E	09	9.0	5.0	56	Y	N
ASSINIBOINE CREEK	32N	27E	01	19.3	5.8	30	Y	N
AUSTIN COULEE	34N	30E	01	13.6	1.1	8	Y	N
BADLAND COULEE	25N	33E	30	3.9	3.9	100	Y	N
BEAR GULCH	25N	26E	26	6.2	1.7	27	Y	N
BEAUCHAMP CREEK	25N	26E	32	20.5	3.6	18	Y	N
BEAVER CREEK	25N	25E	05	144.0	43.3	31	N	N
BIG COTTONWOOD CREEK	34N	27E	03	43.9	6.5	15	Y	N
BIG COULEE	37N	30E	08	4.7	3.6	77	Y	N
BIG WARM SPRING CREEK	26N	26E	02	31.5	0.0	0	Y	N
BLACK COULEE	29N	27E	24	6.5	4.0	63	Y	N
BLACK COULEE	29N	31E	08	11.6	11.2	0	Y	N
BOWEN COULEE	37N	30E	35	4.5	3.7	82	Y	N
BOX ELDER CREEK	23N	32E	20	10.5	2.4	23	Y	N
BOX ELDER SPRING COULEE	26N	33E	27	8.0	3.1	39	Y	N
BULL CREEK	25N	24E	19	13.8	7.2	52	Y	N
BUTTON BUTTE COULEE	27N	29E	03	7.8	3.5	45	Y	N
CABIN CREEK	25N	23E	23	9.5	2.2	23	Y	N
CAMP CREEK	25N	25E	16	21.4	3.8	18	Y	N
CLARK COULEE	34N	32E	10	5.4	2.6	48	Y	N
COAL BUTTE CREEK	25N	25E	35	8.7	0.4	5	Y	N
CORRAL COULEE	35N	33E	02	12.0	2.1	18	Y	N
COTTONWOOD COULEE	28N	32E	30	6.6	6.5	98	Y	N
COTTONWOOD CREEK	36N	33E	03	13.1	7.0	53	Y	N
COW (CROW) CREEK	30N	27E	32	5.2	0.0	0	Y	N
COWIE COULEE	35N	28E	05	4.5	0.0	0	Y	N
CROOKS COULEE	30N	33E	19	4.4	0.6	14	Y	N
CROW CREEK	37N	34E	01	3.4	0.3	9	Y	N
CYPRIAN CREEK	23N	24E	17	5.0	5.0	100	Y	N
DEAD HORSE CREEK	30N	33E	22	2.7	0.3	11	Y	N
DIBBLE COULEE	36N	29E	26	5.3	1.2	23	Y	N
DICK THOMAS COULEE	34N	30E	01	10.0	0.4	4	Y	N
DODSON CREEK	32N	27E	01	13.7	0.4	3	Y	N
DOG CREEK	24N	32E	17	7.6	3.1	41	Y	N
DOGTOWN COULEE	23N	33E	19	5.2	0.3	6	Y	N
DRY FORK BEAUCHAMP CREEK	24N	27E	07	23.1	16.8	73	Y	N
DUNHAN COULEE	37N	33E	29	9.6	7.0	73	Y	N
DUVALL CREEK	24N	23E	36	6.7	3.3	49	Y	N
EAST FORK STINKY CREEK	36N	33E	33	13.5	1.2	9	Y	N
EAST FORK WHITEWATER CREEK	36N	32E	05	21.5	7.9	37	Y	N
EXETER CREEK	31N	28E	15	9.0	1.8	20	Y	N

Stream Name	TWN	RNG	SECT	Total Miles	BLM Miles	% BLM	Free Flow	Outstd Values
FIRST COULEE	22N	29E	08	4.3	3.3	77	Y	N
FIRST CREEK	25N	29E	15	13.7	4.2	31	Y	N
FIRST CREEK	31N	33E	21	8.4	2.1	25	Y	N
FLAT CREEK	26N	31E	29	10.8	4.9	45	Y	N
FOUR MILE COULEE	28N	28E	07	7.7	2.8	36	Y	N
FOURCHETTE CREEK	24N	28E	24	18.2	2.0	11	Y	N
FOURTH CREEK	30N	33E	29	8.2	0.2	2	Y	N
FRENCHMAN CREEK	37N	33E	01	51.7	2.3	4	Y	N
GAREY COULEE	24N	28E	05	4.0	2.4	60	Y	N
GARLAND CREEK	32N	28E	35	7.5	1.6	21	Y	N
GLOYN COULEE	35N	28E	08	4.3	0.9	21	Y	N
GROUSE CREEK	25N	25E	30	6.0	0.3	5	Y	N
GROVE COULEE	26N	33E	22	6.4	4.9	77	Y	N
HALF-WAY COULEE	29N	28E	26	6.4	2.0	31	Y	N
HAWLEY COULEE	22N	29E	26	8.4	1.0	12	Y	N
HAY COULEE	31N	28E	20	5.0	0.0	0	Y	N
HORSESHOE COULEE	36N	27E	33	2.7	0.0	0	Y	N
JOE BELL COULEE	34N	32E	26	4.9	1.9	39	Y	N
JOINER COULEE	33N	27E	05	6.5	4.6	71	Y	N
KILLED WOMAN CREEK	23N	32E	36	2.6	2.5	96	Y	N
LAKE COULEE	36N	29E	27	5.2	3.6	69	Y	N
LAMBING SHED COULEE	35N	28E	27	11.3	5.6	50	Y	N
LARB CREEK	30N	34E	34	9.5	0.0	0	Y	N
LAVELLE CREEK	24N	24E	36	6.0	3.7	62	Y	N
LENOIR COULEE	29N	31E	08	6.9	0.0	0	Y	N
LIND COULEE	24N	22E	12	6.0	5.0	83	Y	N
LITTLE COTTONWOOD CREEK	23N	24E	09	6.4	5.5	86	Y	N
LITTLE COTTONWOOD CREEK	35N	28E	24	22.4	2.5	11	Y	N
LITTLE WARM SPRING CREEK	26N	26E	26	14.5	0.0	0	Y	N
LITTLE JEWEL COULEE	35N	27E	35	8.5	5.2	61	Y	N
LONG (TANK) COULEE	24N	29E	12	6.5	6.4	98	Y	N
LONESOME COULEE	26N	28E	23	4.4	0.3	7	Y	N
LONE TREE COULEE	35N	32E	04	5.3	2.2	42	Y	N
LONE TREE COULEE	25N	33E	16	3.3	3.3	100	Y	N
MARTIN COULEE	35N	28E	01	3.8	0.5	13	Y	N
MARTIN'S COULEE	34N	30E	24	7.6	3.0	39	Y	N
MCCOY COULEE	23N	33E	16	4.9	0.0	0	Y	N
MIDDLE FORK WILDHORSE	28N	26E	36	9.9	2.3	23	Y	N
MILK RIVER	31N	26E	26	113.9	4.9	4	Y	N
MOSS COULEE	28N	33E	25	9.2	1.4	15	Y	N
MUD CREEK	25N	24E	29	6.2	0.0	0	Y	N
MURRAY COULEE	27N	33E	12	5.7	4.3	75	Y	N
NORTH FORK	34N	26E	27	3.2	0.0	0	Y	N
NORTH FORK DHS CREEK	28N	31E	17	12.6	1.8	14	Y	N
NORTH FORK WHITEWATER CREEK	37N	31E	06	3.2	0.0	0	Y	N
NORTH FORK WILDHORSE	28N	27E	18	8.7	2.9	33	Y	N
NORTH FOURCHETTE CREEK	23N	29E	04	7.1	1.1	16	Y	N
OVERFLOW COULEE	27N	30E	06	5.6	3.7	66	Y	N
PARROT COULEE	25N	27E	03	5.4	1.1	20	Y	N
PECK COULEE	37N	34E	32	5.0	3.1	62	Y	N
PLUM PATCH COULEE	24N	33E	21	4.8	0.0	0	Y	N
PROVOST COULEE	35N	32E	15	4.5	0.3	7	Y	N
RATTLESNAKE COULEE	35N	34E	30	6.6	0.0	0	Y	N
RED MUD CREEK	37N	34E	09	10.3	8.8	85	Y	N
ROCK CREEK	24N	25E	08	12.3	3.7	30	Y	N
RUDOLPH COULEE	28N	28E	24	9.8	2.8	29	Y	N
SAGE CREEK	25N	32E	36	11.2	5.0	45	Y	N
SECOND CREEK	24N	28E	11	13.3	3.9	29	Y	N
SECOND CREEK	31N	33E	28	8.6	1.1	13	Y	N
SEVEN MILE COULEE	26N	27E	33	8.0	3.5	44	Y	N
SEVEN MILE CREEK	23N	25E	10	6.0	4.0	67	Y	N
SEVEN MILE CREEK	26N	30E	01	9.6	4.0	42	Y	N
SEVEN MILE CREEK	29N	31E	28	9.5	0.9	9	Y	N

<u>Stream Name</u>	<u>TWN</u>	<u>RNG</u>	<u>SECT</u>	<u>Total</u> <u>Miles</u>	<u>BLM</u> <u>Miles</u>	<u>%</u> <u>BLM</u>	<u>Free</u> <u>Flow</u>	<u>Outstd</u> <u>Values</u>
SHOTGUN COULEE	33N	32E	02	5.7	3.2	56	Y	N
SHOTGUN COULEE	24N	33E	07	4.2	0.9	21	Y	N
SNAKE CREEK	37N	34E	03	6.5	3.2	49	Y	N
SOUTH FORK TELEGRAPH CREEK	23N	32E	15	6.5	1.0	15	Y	N
SPLINE COULEE	27N	26E	13	10.8	1.7	16	Y	N
SPRING COULEE	31N	29E	15	5.6	2.2	39	Y	N
SPRING CREEK	31N	27E	01	8.3	0.4	5	Y	N
SPRING CREEK	23N	26E	14	6.2	0.4	6	Y	N
SUGAR CREEK	25N	23E	23	9.0	0.3	3	Y	N
TALLOW CREEK	25N	33E	09	10.1	2.2	22	Y	N
TELEGRAPH CREEK	24N	32E	24	20.6	2.1	10	Y	N
THIRD CREEK	23N	30E	18	6.7	4.9	73	Y	N
THIRD CREEK	24N	29E	18	15.4	3.7	24	Y	N
THIRD CREEK	30N	33E	16	7.9	0.3	4	Y	N
TIN ROOF	28N	27E	11	5.9	0.7	12	Y	N
TOM DAVIDSON COULEE	29N	28E	17	7.2	1.9	26	Y	N
TRESSLER COULEE	28N	27E	07	6.2	0.0	0	Y	N
TRINE CREEK	23N	26E	01	5.6	4.4	79	Y	N
TRUEBLOOD COULEE	27N	33E	35	6.9	4.2	61	Y	N
WAGNER COULEE	31N	28E	28	3.4	0.3	9	Y	N
WEST ALKALI CREEK	28N	27E	02	14.9	3.2	21	Y	N
WEST FORK STINKY CREEK	35N	33E	30	25.7	1.8	7	Y	N
WHITEROCK COULEE	26N	28E	02	9.5	5.6	59	Y	N
WHITEWATER CREEK	37N	28E	11	57.4	28.6	50	Y	N
WOODY ISLAND COULEE	36N	27E	06	6.7	3.1	46	Y	N
VALENTINE CREEK	22N	30E	19	2.4	2.4	100	Y	N
YADLEY CREEK	31N	29E	21	7.4	1.9	26	Y	N

ATTACHMENT L1

JUDITH RIVER REPORT

Introduction

The Judith River is located in the Judith Resource Area of the Lewistown District. The Ming Coulee to Anderson Bridge segment was found to be eligible for Wild and Scenic River consideration by an interdisciplinary team through development of the JVP RMP/EIS.

This report addresses the eligibility, classification, and suitability of a 27.1 mile long segment of the Judith River in central Montana for Wild and Scenic River designation (see Figure L.1). A prairie river, the Judith flows northerly through a sharply eroded valley that varies in width from less than 1/2 mile to more than 2 1/2 miles. The river's gradient is 14.4 feet per mile. The valley is 650 feet deep at Ming Coulee, the up river end, and 740 feet deep at Anderson Bridge, the lower terminus.

Eligibility

The Judith River is free-flowing throughout its length. The segment under consideration is Class I (easy) on the International Scale of River Difficulty, but several boulder fields require some boating skills. It is boatable by canoe or raft, but low water levels during the height of the irrigation season and during late summer can require pulling boats over a couple of sandstone shelves or "niche points."

There are BLM lands along this river reach whose resources meet the "outstandingly remarkable values" criteria. They possess outstandingly remarkable scenic, recreational, and geologic values. Fish and wildlife values are excellent. Cultural values have not been assessed, but the Judith River is known to have been a favorite route for the Blackfeet to travel when raiding the Crow, and for the Crow to travel when raiding the Blackfeet.

The river provides outstanding scenery (Class A scenic quality rating) with very few impacts to the natural setting. These impacts do include scattered ranch buildings (many abandoned). Unobtrusive trails to these ranches intrude into the natural landscape. Valley cliffs are so steep along the upper half of this segment that livestock grazing is not evident over much of its length. Recreational use is light, so opportunities for solitude are excellent. Six good campsites have been identified on BLM land along the river. However, legal access along the segment is limited.

The river is characterized by a meandering channel with small widely scattered secondary channels commonly forming narrow islands. Vegetation along the shoreline is typical of riparian communities which are historically found throughout perennial drainages in eastern Montana. Due to its unique free-flowing nature the Judith River has a relatively pristine riparian ecosystem that has largely disappeared from other rivers in the region. This is particularly true in lower reaches of the river. Large groves of cottonwood and box elder form a dense tree canopy over an understory dominated by thickets of snowberry, chokecherry, rose and other shrubs. Where tree canopy is sparse or absent, silver sage and stands of grass and sedges dominate the flood plain.

Along the upper half of this segment, valley slopes have stringers of Douglas-fir and ponderosa pine along bases of sandstone cliffs and up side drainages. Along the lower half of the segment, stands of pine and juniper occupy the valley slopes and side drainages, and a few are found within the riparian zone.

Wildlife diversity is characteristically high as influenced by the vegetative structure of riparian communities. The understory of the cottonwood groves and grassy banks provide a variety of nesting cover and shelter for waterfowl, passerines, pheasants, herpetofauna and small mammals. Deer frequent the floodplain, and tree girdling by beaver is common. Hunting pressure is probably light because of limited physical access to the river, and because river travel is suited to only non-motorized watercraft.

Fisheries haven't been sampled, but warm water temperatures, turbidity, and shallow depth would favor warm water species.

The first 14.7 miles are dominated by highly scenic white cliffs of Virgelle sandstone (the lower unit of the Eagle sandstone formation). These appear as rim-rocks along a narrow river valley at Ming Coulee, and slip below the alluvium of the valley floor just below the confluence of Box Elder Creek. As the position of the white Virgelle sandstone moves from the rim to the valley floor, it is replaced along the rim, and then along the slopes, by alternation beds of gray to buff sandstone, shale, carbonaceous shale and coal of the upper and middle members of the Eagle formation. The Eagle formation is then overlain by the brownish-gray marine shales of the Claggett formation. As Anderson Bridge is approached, cliffs again appear along the rim as the light-brown sandstone of the Judith River formation becomes more and more of a dominant feature. The Claggett and Judith River formations form badlands type topography.

The upper half of this segment is predominately a steep sided narrow canyon. The only impacts to the natural scene are ranch buildings 0.9 mile below Ming Coulee, a homestead 1.7 miles below that, and a set of deteriorating barns 1.8 miles below the homestead. Unobtrusive trails to these structures are the only vehicle access to the river in this section. The homestead and barns add historical interest and charm to a float, but they have not been assessed for their cultural resources value.

In the lower half, the river valley broadens, assumes a "badlands" character, and the river meanders between high shale cut banks. An abandoned set of ranch buildings can be seen 1.9 miles below Box Elder Creek. Beginning 3.7 miles below Box Elder Creek, a high woven-wire fence is visible from the river at various locations for 4 miles, and the buildings of the Judith River Ranches, Inc. headquarters are visible from several locations for 2 miles mid-way along this reach. The bottom lands along the last 2 miles above Anderson Bridge are irrigated from the river and farmed.

This segment of the Judith is an Recreation Opportunity Spectrum Semi-Primitive Nonmotorized Class area, and it received a Quality Evaluation Rating of Class "A" for Sightseeing-Scenery and for Water Sports-Floatboating during preparation of the Fergus Unit Resource Analysis (1977). This segment was classified as a VRM Class II area during development of the Fergus MFP.

BLM lands are found scattered through the river area and as such possess remarkable (primarily scenic) values in the same pattern. Although the river resources are best considered as a continuous system, it has been determined that those BLM lands do contain values worthy of consideration even in isolation.

Classification

The segment of the Judith River between Ming Coulee and Anderson Bridge would be classified as Wild under Section 2(b) of the WSRA. The river is free of impoundments. It is inaccessible except by unobtrusive vehicle trails, and they are only briefly visible from the waters surface. Its watershed and shore-line are primitive except for irrigation pumps just above Anderson Bridge. The Judith's waters are unpolluted with the possible exception of agricultural chemicals that may be leaching into the river above this segment. The only elements to detract from its fully representing a vestige of primitive America are the abandoned homestead below Box Elder Creek and the Judith River Ranch headquarters and fence.

Interim Management

Interim management measures will apply only to BLM land within 1/4 mile of either side of the riverbank as specified in the WSRA. Approximately 1,895 acres of BLM land will be affected.

The BLM land along this segment of the Judith River will be managed as part of the Judith River Special Recreation Management Area (SRMA# MT 06852) and the management prescriptions for that area will apply as discussed in the Management Common To All Alternatives section of Chapter 2.

There are no known threats to the pristine condition of the Judith River or its valley between Ming Coulee and Anderson Bridge from BLM actions. Any project that might be proposed would be carefully assessed and its impacts mitigated to protect the values present. VRM Class II objectives would apply. Possible threats from private land development are not anticipated at this time. However, changes in ownership or management goals could change that assessment.

Opportunities would be sought to acquire lands contiguous to the river.

Suitability

The following factors were considered in the suitability determination for one segment of the Judith River from Ming Coulee to Anderson Bridge.

1. Characteristics which do or do not make the area a worthy addition to the National Wild and Scenic Rivers System.

The scenery and resources along this segment of the Judith River, the near pristine setting, and the potential recreational opportunities available make this river segment worthy for addition to the Wild and Scenic River System.

There are however, severe manageability problems along this section. No bona-fide public access exists to any of the BLM land along the river. There are no public put-in points within the segment, although one could take out at the Anderson Bridge. There is no road or trail access suitable for hiking the unit, once again due to lack of BLM land and access. The small, scattered BLM land pattern, while possessing some unique values, is overwhelmingly constrained by the private land surrounding it. BLM has no control over these lands which, if taken as a whole, are an integral part of the river system and without which, would make BLM management of the river ineffectual.

2. Current status of landownership, use in the area, including the amount of private land involved and associated or conflicting uses.

There are approximately 1,895 acres of BLM land within 1/4 mile on either side of the river bank along the 27.1 miles of this river segment. There are no BLM lands in the first several miles of river. Total acreage, including all ownerships, within this 1/4 mile area is approximately 11,200 acres. Of this:

1,895 acres (16.9%) are BLM lands, and
9,305 acres (83.1%) are private lands.

Within a potential rim-to-rim river corridor, such as that designated by Congress in the Upper Missouri National Wild and Scenic River (UMNWSR) legislation, are 22,895 acres. Of this:

4,198 acres (18.3%) are BLM lands,
840 acres (3.7%) are State lands, and
17,857 acres (78.0%) are private lands.

Ownership of land bordering the Judith River includes:

6.5 miles (24%) of BLM land, and
20.6 miles (76%) of private land.

BLM land along this segment is available for livestock grazing. Private land in the area is primarily used for livestock grazing and farming.

This segment is part of the Judith River Special Recreation Management Area (SRMA MT06852). In the Recreation 2000 Tri-State Strategy it is number 52 in priority statewide out of a total 54 sites. It is estimated that the Judith River SRMA receives about 800 visits annually for hunting, floating, fishing, sightseeing, hiking and camping.

BLM land along this segment is available for oil and gas leasing. The area has moderate potential for the occurrence of oil and gas. There are no mining claims along this segment. Potential for locatable minerals is low.

This segment has power site reserves for water power and storage development. BLM land along the segment currently contains 1,360 acres of power site withdrawals. These withdrawals would be recommended for revocation if the sites do not have water power potential. There are no existing water resource developments within this segment.

3. Reasonably foreseeable potential uses of the land and related waters which would be enhanced, foreclosed, or curtailed if the area were included in the National Wild and Scenic Rivers System, and the values which could be foreclosed or diminished if the area is not protected as part of the System.

Recreational opportunities for a quality primitive backcountry boating experience would be enhanced and the Charlie Russell Country Tourism Promotion program would have enhanced capability. Wildlife, riparian and cultural values would also be enhanced.

Potential mining claims and locatable mineral development would be foreclosed within 1/4 mile of the river if designated and classified as Wild.

Reservoir construction which would negatively impact river values would be curtailed. Oil and gas leasing could be curtailed if exploration and development would negatively impact river values.

There are no known proposals that would foreclose or diminish the values present if the area is not protected as part of the Wild and Scenic River System.

4. Public, State, local, or Federal interest in designation of the river, including the extent to which the administration of the river, including the costs thereof, may be shared by State, local, or other agencies and individuals.

Other than the BLM there has been no interest in designation expressed from any other federal, state or local agency. The American Rivers National Organization has listed the Judith River on its national list of outstanding rivers, and the U.S. Forest Service, Lewis and Clark National Forest, has found the extreme upper reaches of the Judith River eligible for consideration due to cultural resource values.

The Judith-Valley-Phillips Management Situation Analysis (MSA) for the Judith River SRMA identified the need for a cooperative agreement with the State of Montana to conduct a wild and scenic river study to determine suitability. It also prescribed acquiring access for ingress and egress sites.

5. Estimated cost of acquiring necessary lands and interests in lands and of administering the area if it is added to the System.

It would not be feasible for the BLM to manage its relatively small section of the river without acquiring private land bordering the river and within a rim-to-rim corridor. Land types range from rough breaks land to irrigated bottoms. Approximate land values range from \$35 per acre to \$450 per acre, respectively. The majority of private land is of the rough breaks type (+ 90%). Based on these land types and approximate land values, the total value of private land in a rim-to-rim corridor is estimated to be from \$1,000,000 to \$1,250,000.

Within the corridor, the purchase price of private land opposite Ming Coulee for a campsite and boat launch area is estimated to be from \$10,000 to \$15,000. The purchase price of private land at Anderson Bridge for a boat take out area is estimated to be from \$5,000 to \$10,000. However, the availability of any of this land to the BLM for purchase is questionable.

Two access easements will be needed, one for boat launching (3.5 miles), and one for take out (.5 miles). Approximate costs for easement acquisition would be \$2,000 and \$2,500 respectively, for a total of \$4,500 to \$5,000.

Development of the area would include the construction of parking, picnicking and sanitary facilities at the launch and take-out sites, and placement of sanitary facilities at selected campsites. Development costs are estimated at \$30,000.

The development of a "Floater's Guide" with self-guided interpretation would cost around \$6,000.

Due to the proximity of the UMNWSR and because BLM has equipment and personnel in place for management, actual costs for patrol of the Judith River are low. Bi-weekly maintenance patrols would probably be conducted during the boating season. Approximate costs would be \$3,000 for labor and \$1,000 for supplies and equipment for a cost of \$4,000 annually.

Public contact and visitor services would require around four months of field time and two months of office time or \$18,000 annually.

6. Ability of the agency to manage the river area or segment as a Wild and Scenic River.

This segment of the Judith River is eligible for inclusion in the Wild and Scenic River System. However, the lack of an adequate BLM land base along its corridor diminishes its suitability as a BLM managed river. Should opportunities develop that make the ownership pattern more positive, then the issue of the Judith River's suitability should be revisited. At this time and based on the overall issue of land ownership and management, the BLM has no ability to manage this segment of the Judith River as a Wild and Scenic River.

7. Historical or existing rights which would be adversely affected as to foreclosure, extinguish, curtail, infringe, or constitute a taking which would entitle the owner to just compensation if the area were included in the national Wild and Scenic Rivers System. In the suitability analysis, adequate consideration will be given to rights held by owners, applicants, lessees, or claimants.

Historical and existing rights were not evaluated due to the lack of BLM land along this segment of the river. This would be considered if the State of Montana studied the issue of suitability.

8. Other issues and concerns identified in the land use planning process.

No other issues or concerns were identified.

Conclusion

The BLM has concluded that this segment of the Judith River is eligible for inclusion in the Wild and Scenic River System. However, based on the suitability evaluation this segment of the Judith River has been determined nonsuitable for designation because of severe manageability problems. These include lack of access to the area, the small scattered BLM land pattern and the overwhelming constraints of private land ownership and management in the area. Lack of support by any other federal, state or local interest combined with the small percentage of BLM land in the area appear to make joint consideration of the area infeasible as well. The BLM will provide interim management for these lands until the Record of Decision is issued for this RMP.

APPENDIX J

RIPARIAN AND WETLAND MANAGEMENT OF WATERSHEDS

This appendix shows the allotments addressed in the Riparian and Wetland Management of Watersheds issue. The alternatives divide the allotments in five categories based on the type of plan for the allotment (i.e. existing, proposed or potential AMP) or the miles of stream and number of water sources. The number of water sources is based on the reservoirs, potholes and springs with water rights. This provides a range in the number of allotments for the alternatives as follows:

- Alternative A: Existing and Proposed AMPs
- Alternative B: Existing AMPs
- Alternative C: Existing, Proposed and Potential AMPs
- Alternative D: Existing, Proposed, and Potential AMPs and non-AMP areas
- Alternative E: Allotments with 0.5 or more stream miles or 5 or more water sources.

The allotments are ranked into six groups based on resource conditions and whether riparian objectives are being met in the allotment. Resource conditions are reflected in the allotment categorization; Improve (I), Maintain (M), or Custodial (C). This information may change, based on site potential as determined by intensive inventories.

- Group 1 = I allotments and not meeting objectives
- Group 2 = M allotments and not meeting objectives
- Group 3 = I allotments and meeting objectives
- Group 4 = M allotments and meeting objectives
- Group 5 = C allotments and not meeting objectives
- Group 6 = C allotments and meeting objectives

The following table shows the codes used for management category, type of plan and whether riparian objectives are being met.

Management Category = MGT	Type of Plan = PLN	Meeting Riparian Objectives = OBJ
I = Improve	E = Existing AMP	Y = Yes
M = Maintain	P = Proposed AMP	N = No
C = Custodial	PT = Potential AMP	U = Unknown
	N = Non-AMP Area	

Group 1 = I Allotments and Not Meeting Objectives:

Valley Resource Area						Stream Water		Alternative				
Allot	No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
4005		Flint Reservoir	I	P	U	0.0	4	x		x	x	
4015		South Creek	I	E	N	0.6	14	x	x	x	x	x
4024		Divide	I	P	N	3.0	8	x		x	x	x
4034			I	N	U	0.0	1				x	
4052			I	PT	N	1.0	2			x	x	x
4062			I	N	U	0.0	4				x	
4088		Ellsworth Coulee	I	N	U	0.0	2				x	
4092		Upper Unger Coulee	I	E	U	3.5	0	x	x	x	x	x
4112		Upper Spring Creek	I	PT	U	0.0	4			x	x	
4113		Spring Coulee	I	P	U	0.0	4	x		x	x	
4116		Hawk Coulee	I	P	U	0.0	7	x		x	x	x
4302		Bear Coulee	I	E	N	24.0	9	x	x	x	x	x
4303		Buggy Creek	I	E	N	8.0	13	x	x	x	x	x
4518		Ash Coulee	I	PT	U	0.0	5			x	x	x
4534		Northfork Antelope	I	PT	U	0.0	1			x	x	
4535		Southfork Antelope	I	E	U	0.0	16	x	x	x	x	x
4537		Lower Northfork Ante	I	P	U	0.0	5	x		x	x	x
4538		Lower Hardscrabble	I	PT	U	0.0	2			x	x	
4539		Hardscrabble Creek	I	PT	U	0.0	3			x	x	

Valley Resource Area (Continued)

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
4546	Lost Coulee	I	P	U	0.0	11	x		x	x	x
4548	Boxelder Creek	I	E	N	1.5	24	x	x	x	x	x
4551	Upper Brazil Creek	I	E	U	0.0	45	x	x	x	x	x
4552	Upper Little Beaver	I	E	N	3.0	15	x	x	x	x	x
4553	Brazil Creek	I	E	N	5.5	31	x	x	x	x	x
4554	Lower Southfork Ante	I	E	U	0.0	11	x	x	x	x	x
4557	Second Brazil Creek	I	P	U	0.0	5	x		x	x	x
4563	Coyote Creek	I	E	U	0.0	16	x	x	x	x	x
4573	Little Beaver Creek	I	P	N	5.0	5	x		x	x	x
4577	Mud Creek	I	E	N	4.0	8	x	x	x	x	x
4579	Upper Larb Creek	I	E	N	3.0	13	x	x	x	x	x
4583	Lower Little Beaver	I	E	N	16.0	38	x	x	x	x	x
4595	Carpenter Creek	I	E	U	9.0	113	x	x	x	x	x
4700	Upper Mceachran	I	E	U	0.0	15	x	x	x	x	x
4701	Davidson Coulee	I	E	U	0.0	10	x	x	x	x	x
4703	Upper Rock Coulee	I	E	N	1.8	12	x	x	x	x	x
4714	Rock Creek	I	PT	N	1.5	0			x	x	x
4722	Bitter Creek	I	E	U	1.5	2	x	x	x	x	x
4729	West Rock Creek	I	E	U	0.5	5	x	x	x	x	x
4730	Thoeny	I	P	U	0.0	5	x		x	x	x

Judith Resource Area

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
02001	East Indian Butte Co	I	P	U	5.8	15	x		x	x	x
02013	West Indian Butte Co	I	P	U	4.7	4	x		x	x	x
15096	Knox Ridge Rd.IND.	I	P	U	0.0	7	x		x	x	x
20064	Two Calf Norskog IND	I	E	U	0.0	9	x	x	x	x	x
04865	Doman IND.	I	E	U	0.0	2	x	x	x	x	
15087	Stewart IND.	I	E	U	0.3	0	x	x	x	x	
15025	Musselhell Common	I	P	U	0.0	6	x		x	x	x

Phillips Resource Area

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
5001	Border	I	E	U	0.0	60	x	x	x	x	x
5002	North Woody Island	I	E	U	0.0	332	x	x	x	x	x
5003	West Sunnyslope	I	E	U	0.0	72	x	x		x	x
5004	Mid-Sunnyslope	I	PT	U	0.0	32			x	x	x
5006	North Sunnyslope	I	PT	U	0.0	38			x	x	x
5007	East Sunnyslope	I	E	U	0.0	3	x	x	x	x	
5008	Sunnyslope	I	E	U	0.0	106	x	x		x	x
5009	Upper Whitewater Ck.	I	PT	U	0.0	46			x	x	x
5010	Fanning Coulee	I	PT	U	0.0	8			x	x	x
5011	West Big Coulee	I	PT	U	0.0	142			x	x	x
5012	Big Coulee	I	P	U	5.8	120	x		x	x	x
5013	Divide	I	PT	U	0.0	120			x	x	x
5014	North Pea Lake	I	PT	U	0.0	49			x	x	x
5015	Pea Lake	I	PT	U	2.0	53			x	x	x
5016	Leibel Coulee	I	PT	U	0.0	13			x	x	x
5019	Elmer Coulee	I	PT	U	0.0	17			x	x	x
5021	Orrey Coulee	I	PT	U	0.0	69			x	x	x
5022	East Plansview	I	PT	U	0.0	19			x	x	x
5023	Frenchman Creek	I	P	U	0.8	31	x		x	x	x
5024	Upper Snake Creek	I	PT	U	0.0	13			x	x	x
5026	Wodtkey Coulee	I	P	U	5.3	26	x		x	x	x
5027	Cottonwood Creek	I	PT	U	0.0	6			x	x	x
5030	Dunhan Coulee	I	E	U	0.2	35	x	x		x	x
5031	Wallis Coulee	I	PT	U	0.0	4			x	x	
5033	Kashaw Coulee	I	PT	U	0.0	23			x	x	x
5034	Plainsview	I	E	U	0.0	43	x	x	x	x	x
5035	North Whitewater Lk.	I	PT	U	0.0	43			x	x	x

Phillips Resource Area (continued)

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
5036	West Whitewater Lake	I	E	U	3.5	59	x	x	x	x	x
5037	Lone Tree Coulee	I	E	U	1.0	57	x	x	x	x	x
5038	Reservoir	I	E	U	0.5	17	x	x		x	x
5039	Whitewater Creek	I	PT	U	2.5	50			x	x	x
5041	Lake Coulee	I	PT	U	0.0	169			x	x	x
5042	Flat Coulee	I	PT	U	0.0	43			x	x	x
5043	Horseshoe Lake	I	PT	U	0.0	130			x	x	x
5044	North Horseshoe Lake	I	PT	U	0.0	56			x	x	x
5047	Horseshoe Coulee	I	E	U	0.5	84	x	x	x	x	x
5051	Woody Island	I	E	U	0.2	60	x	x	x	x	x
5053	Take-Away	I	PT	U	0.0	7			x	x	x
5056	Lower Lake Coulee	I	PT	U	0.0	4			x	x	
5059	Dibble Coulee	I	PT	U	0.0	18			x	x	x
5062	Austin Lake	I	PT	U	2.5	52			x	x	x
5064	Whitewater	I	PT	U	2.0	4			x	x	x
5065	Eastfork Whitewater	I	E	U	4.8	52	x	x	x	x	x
5066	Provost Coulee	I	PT	U	0.0	10			x	x	x
5069	Westfork Stinky	I	PT	U	0.0	9			x	x	x
5071	Turkey Track	I	PT	U	1.0	18			x	x	x
5075	Two Mile Coulee	I	PT	U	0.5	2			x	x	x
5084	Upper Coop Coulee	I	E	U	0.0	13	x	x	x	x	x
5085	Coop Coulee	I	E	U	0.0	4	x	x	x	x	
5086	Lower Coop Coulee	I	PT	U	0.0	6			x	x	x
5087	Joe Bell Coulee	I	E	U	0.0	45	x	x	x	x	x
5089	Martins Coulee	I	E	U	1.5	86	x	x	x	x	x
5093	Lambing Coulee	I	E	U	0.0	35	x	x	x	x	x
5094	Upper Cottonwood	I	P	U	2.5	26	x		x	x	x
5095	Joiner Coulee	I	P	U	0.0	17	x		x	x	x
5096	Lamere Coulee	I	E	U	4.0	42	x	x	x	x	x
5100	Mud Creek	I	PT	U	0.0	13			x	x	x
5107	Garland Creek	I	PT	U	0.5	2			x	x	x
5109	West Garland Creek	I	E	U	0.2	19	x	x	x	x	x
5110	East Garland Creek	I	E	U	3.3	16	x	x	x	x	x
5116	Alkali Coulee	I	PT	U	0.0	15			x	x	x
5130	Horse Camp Coulee	I	E	U	1.7	10	x	x	x	x	x
5131	Basin Coulee	I	PT	U	0.0	27			x	x	x
5132	Assiniboine East	I	PT	U	0.0	4			x	x	
5133	Assiniboine Creek	I	E	U	4.0	21	x	x	x	x	x
5144	Dodson Creek	I	PT	U	0.2	39			x	x	x
5152	Exeter Creek	I	PT	U	1.5	3			x	x	x
5153	Wilson Coulee	I	PT	U	0.0	10			x	x	x
5154	Dry Fork	I	PT	U	0.0	4			x	x	
5155	Spring Creek	I	PT	U	0.0	2			x	x	
5300	South Big Bend	I	E	U	3.0	14	x	x	x	x	x
5304	West Hewitt Lake	I	PT	U	0.0	8			x	x	x
5309	South Hewitt Lake	I	PT	U	0.0	1			x	x	
5324	North Bowdoin	I	PT	U	0.0	7			x	x	x
5325	Horse Camp Coulee	I	E	U	1.8	1	x	x	x	x	x
5329	Cow Creek	I	E	U	0.0	4	x	x	x	x	
5343	Third Creek	I	N	U	0.0	6				x	x
5344	Fourth Creek	I	E	U	0.0	12	x	x	x	x	x
5349	Upper Moss Coulee	I	PT	U	0.0	3			x	x	
5352	Moss Coulee	I	PT	U	0.0	1			x	x	
5354	Guston Coulee	I	E	U	7.0	11	x	x	x	x	x
5355	Alkali Lake Coulee	I	PT	U	2.0	0			x	x	x
5363	Black Coulee	I	E	U	0.0	10	x	x	x	x	x
5369	South Alkali Creek	I	PT	U	0.5	3			x	x	x
5372	Alkali Creek	I	PT	U	1.0	10			x	x	x
5374	Half Way Coulee	I	E	U	0.0	5	x	x	x	x	x
5386	Tressler Coulee	I	PT	U	0.0	1			x	x	
5387	West Alkali Creek	I	E	U	1.7	29	x	x	x	x	x
5388	Rudolph Coulee	I	E	U	2.5	40	x	x	x	x	x

Phillips Resource Area (continued)

Allot						Stream Water	Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
5389	Upper Alkali Creek	I	PT	U	1.5	4			x	x	x
5390	Upper Overflow Coul.	I	PT	U	1.3	2			x	x	x
5399	Southfork Cottonwood	I	PT	U	0.0	1			x	x	
5400	Northfork Cottonwood	I	PT	U	0.0	1			x	x	
5402	Lower Seven Mile	I	PT	U	3.0	0			x	x	x
5405	Lower Cottonwood Crk	I	PT	U	3.8	13			x	x	x
5406	Lower Albert Coulee	I	E	U	0.0	9	x	x	x	x	x
5407	Albert Coulee	I	E	U	0.0	10	x	x	x	x	x
5408	Trueblood Coulee	I	PT	U	0.2	17			x	x	x
5411	Beaver Creek	I	PT	U	1.0	5			x	x	x
5413	Armstrong Coulee	I	PT	U	0.0	13			x	x	x
5414	Smith Coulee	I	PT	U	1.2	2			x	x	x
5415	Overflow Coulee	I	E	U	0.0	14	x	x	x	x	x
5416	Sanford Coulee	I	P	U	1.2	23	x		x	x	x
5417	Whiterock Coulee	I	E	U	5.0	30	x	x	x	x	x
5424	Little Warm Spr. Cr.	I	P	U	1.0	24	x		x	x	x
5426	Alkali Coulee	I	PT	U	0.0	20			x	x	x
5427	North Flat Creek	I	E	U	0.0	62	x	x	x	x	x
5428	Rheumatism Coulee	I	E	U	2.0	4	x	x	x	x	x
5429	Spring Creek	I	E	U	0.0	24	x	x	x	x	x
5431	West Larb Creek	I	E	U	0.0	2	x	x	x	x	
5432	Upper Black Coulee	I	E	U	0.0	8	x	x	x	x	x
5434	Shotgun Coulee	I	P	U	0.0	31	x		x	x	x
5436	Lone Horse Coulee	I	PT	U	2.0	9			x	x	x
5437	Sage Creek	I	E	U	1.5	11	x	x	x	x	x
5439	Flat Creek	I	E	U	3.5	24	x	x	x	x	x
5440	West Flat Creek	I	E	U	0.0	24	x	x	x	x	x
5441	Lower Alkali Coulee	I	E	U	0.0	3	x	x	x	x	
5442	Mickey Reservoir	I	PT	U	0.0	16			x	x	x
5443	First Creek Hall	I	E	U	0.0	21	x	x	x	x	x
5444	Scott Coulee	I	PT	U	0.0	8			x	x	x
5445	Upper First Creek	I	E	U	0.0	12	x	x	x	x	x
5446	Parrot Coulee	I	PT	U	0.0	4			x	x	
5447	Garey Coulee	I	PT	U	0.0	20			x	x	x
5450	First Creek School	I	E	U	0.0	5	x	x	x	x	x
5451	Upper Long Coulee	I	E	U	0.0	6	x	x	x	x	x
5452	Long Coulee	I	E	U	4.5	26	x	x	x	x	x
5453	Stratton Coulee	I	E	U	5.0	27	x	x	x	x	x
5454	Dog Creek	I	E	U	0.0	6	x	x	x	x	x
5455	Lower Dog Creek	I	E	U	0.0	11	x	x	x	x	x
5456	Lonetree Coulee	I	PT	U	0.0	2			x	x	
5457	Upper Dog Creek	I	E	U	0.0	7	x	x	x	x	x
5460	Horse Pasture Coulee	I	PT	U	0.8	16			x	x	x
5464	West Albert Coulee	I	PT	U	4.0	3			x	x	x
5600	Parrot Lake	I	PT	U	0.0	11			x	x	x
5601	Best Coulee	I	PT	U	0.0	5			x	x	x
*5610	Antelope Creek	I	P	U	6.0	24	x		x	x	x
5612	Square Butte	I	P	U	10.0	17	x		x	x	x
5613	Camp Creek	I	E	U	0.2	2	x	x	x	x	
5615	West Dry Fork	I	E	U	0.0	28	x	x	x	x	x
5617	East Dry Fork	I	E	U	7.0	30	x	x	x	x	x
5618	Upper Garey Coulee	I	E	U	0.0	8	x	x	x	x	x
5620	Upper Fourchette Cr.	I	P	U	0.0	7	x		x	x	x
5623	Upper Seven Mile Cr.	I	E	U	0.0	6	x	x	x	x	x
5624	East Rock Creek	I	E	U	0.0	2	x	x	x	x	
5625	Lavelle Creek	I	E	U	9.3	21	x	x	x	x	x
5626	Rock Creek	I	P	U	2.0	10	x		x	x	x
5627	Nichols Coulee	I	E	U	0.0	48	x	x	x	x	x
5628	Beauchamp Creek	I	P	U	1.8	13	x		x	x	x
5631	Cruikshank	I	E	U	4.5	4	x	x	x	x	x
5651	North Fourchette	I	E	U	0.0	14	x	x	x	x	x
5652	Third Creek	I	E	U	0.0	26	x	x	x	x	x

Phillips Resource Area (continued)

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
5653	Lower Third Creek	I	E	U	6.8	14	x	x	x	x	x
5654	Telegraph Creek	I	E	U	0.0	26	x	x	x	x	x
5655	Box Elder Creek	I	E	U	2.0	13	x	x	x	x	x
5657	South Fork Telegraph	I	P	U	0.0	5	x		x	x	x
5661	Killed Woman	I	E	U	0.0	4	x	x	x	x	
5662	Fourchette Creek	I	E	U	0.8	32	x	x	x	x	x
5663	First Coulee	I	E	U	0.0	12	x	x	x	x	x
5665	Karsten Coulee	I	E	U	0.0	16	x	x	x	x	x
5667	Burnt Lodge	I	P	U	0.0	11	x		x	x	x
5160	Lower Wilson Coulee	I	PT	U	0.0	12			x	x	x

Group 2 = M Allotments and Not Meeting Objectives:

Valley Resource Area

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
4002	Upper Bluff Creek	M	E	U	0.0	8	x	x	x	x	x
4011		M	PT	U	0.0	1			x	x	
4013	North Tomato Creek	M	PT	U	0.0	3			x	x	
4014	Northfork Rock Creek	M	E	U	0.0	2	x	x	x	x	
4016	Upper Morgan Creek	M	PT	U	0.0	1			x	x	
4020		M	PT	U	0.0	2			x	x	
4021	Upper Little Snake	M	PT	U	0.0	2			x	x	
4023	Chambers Coulee	M	E	U	0.0	10	x	x	x	x	x
4026		M	PT	U	0.0	2			x	x	
4027		M	N	U	0.0	1				x	
4030		M	PT	U	0.0	1			x	x	
4031		M	PT	U	0.0	1			x	x	
4032	Lower Snake Creek	M	PT	U	2.5	3			x	x	x
4037		M	PT	U	0.5	0			x	x	x
4038		M	PT	U	0.5	2			x	x	x
4042		M	N	U	0.0	1				x	
4049		M	PT	U	0.0	1			x	x	
4051		M	N	U	0.0	1				x	
4056		M	PT	U	0.0	2			x	x	
4057		M	N	U	0.0	1				x	
4058		M	PT	U	0.0	2			x	x	
4059	Wards Dam	M	E	U	0.0	5	x	x	x	x	x
4061	Lower West Porcupine	M	PT	U	0.0	2			x	x	
4065		M	N	U	0.0	1				x	
4067	Papoose Creek	M	PT	U	0.0	2			x	x	
4068		M	PT	U	0.0	3			x	x	
4075		M	N	U	0.0	2				x	
4076		M	N	U	0.0	1				x	
4077		M	N	U	0.0	1				x	
4078	Upper Lime Creek	M	E	U	0.0	11	x	x	x	x	x
4079	South Lime Creek	M	PT	U	0.0	4			x	x	
4080	Hall Coulee	M	PT	U	0.0	4			x	x	
4082	Black Coulee	M	PT	U	0.0	4			x	x	
4089	Alkali Coulee	M	PT	U	0.0	1			x	x	
4090	Lower Alkali Creek	M	N	U	0.0	1				x	
4097	Eastfork Cashe Creek	M	PT	U	0.0	1			x	x	
4100		M	PT	U	0.0	1			x	x	
4101	Antelope Spring	M	PT	U	0.0	1			x	x	
4102	Dry Coulee	M	PT	U	0.0	2			x	x	
4104		M	N	U	0.0	1				x	
4105		M	PT	U	0.0	1			x	x	
4106	Upper Richardson	M	PT	U	0.0	5			x	x	x
4111	Foss Coulee	M	PT	U	0.0	5			x	x	x
4115		M	N	U	0.0	1				x	
4121	Lower Cherry Creek	M	N	U	0.0	4				x	
4124	East Cherry Creek	M	N	U	0.0	1				x	

Valley Resource Area (continued)

Allot		Stream Water				Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D E
4129	Cherry Creek Forks	M	N	U	0.0	1				x
4300	Dry Fork	M	N	U	0.0	1				x
4304	Porcupine Creek	M	N	U	0.0	1				x
4308	Spring Coulee	M	PT	U	0.0	3			x	x
4309	Westfork	M	PT	U	0.0	5			x	x x
4501	Miles Crossing Cou	M	N	U	0.0	1				x
4508	Little Horn Coulee	M	N	U	0.0	1				x
4509	Tank Coulee	M	N	U	0.0	3				x
4511	Kent Coulee	M	PT	U	0.0	1			x	x
4513	Rattlesnake Coulee	M	PT	U	0.0	2			x	x
4514		M	PT	U	0.0	2			x	x
4527	Sandstone	M	PT	U	0.0	2			x	x
4529	Square Coulee	M	PT	U	0.0	1			x	x
4533	Upper Antelope Cr.	M	PT	U	0.0	1			x	x
4540	Hay Coulee	M	PT	U	0.0	1			x	x
4550	South Shed Coulee	M	E	U	0.0	18	x	x	x	x x
4559		M	PT	U	0.2	0			x	x
4564	Alkali Coulee	M	PT	U	0.5	1			x	x x
4578	Grandpa Coulee	M	E	U	0.0	7	x	x	x	x x
4586	Upper Mud Creek	M	N	U	0.0	4				x
4587	Duck Creek	M	N	U	0.0	1				x
4592	Bomber Coulee	M	E	U	0.0	29	x	x	x	x x
4593	Skunk Coulee	M	N	U	0.0	5				x x
4596	Matador Creek	M	E	U	0.0	2	x	x	x	x
4598	Seven Point	M	E	N	2.0	20	x	x	x	x x
4600	Cabin Coulee	M	P	U	0.0	2	x		x	x
4650	Roanwood Coulee	M	PT	U	0.0	1			x	x
4655	North Poplar River	M	PT	U	0.0	3			x	x
4659	South Roanwood Coule	M	N	U	0.0	1				x
4660	South Poplar River	M	PT	U	0.0	1			x	x
4702	Meachran Creek	M	N	U	0.0	1				x
24708	Ichpair Creek	M	E	N	10.5	34	x	x	x	x x
4721	Clara Reservoir	M	PT	U	0.0	4			x	x
4723	Little Papoose Creek	M	E	U	1.5	21	x	x	x	x x
4726	Eagles Nest Coulee	M	E	U	14.0	24	x	x	x	x x
4728	Lime Creek	M	PT	U	0.0	2			x	x

Judith Resource Area

Allot		Stream Water				Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D E
20016	Wolf Creek Common	M	P	U	0.7	0	x		x	x x
02005	Fergus Triangle IND.	M	E	U	0.0	3	x	x	x	x
02018	Mayberry IND.	M	P	U	1.8	1	x		x	x x
02021	Lower Armells	M	P	U	0.7	0	x		x	x x
02024	Bourgeois IND.	M	P	U	0.0	2	x		x	x
02025	Dry Armells Petranek	M	P	U	0.0	2	x		x	x
02031	Willis Place IND.	M	N	U	0.0	4				x
02500	Lund # Ranch IND.	M	P	U	2.1	3	x		x	x x
02503	Busenbark IND.	M	E	U	0.0	6	x	x	x	x x
02505	Hay Coulee	M	E	U	0.0	3	x	x	x	x
02506	North Crooked IND.	M	P	U	3.1	13	x		x	x x
02510	Antelope Styer/Spiro	M	E	U	0.0	4	x	x	x	x
02599	Button Butte IND.	M	P	U	0.0	1	x		x	x
10009	Whiskey Ridge	M	E	U	3.0	2	x	x	x	x x
10085	Mees Cabin Trail IND	M	E	U	0.0	5	x	x	x	x x
15101	Antelope IND.	M	P	U	0.8	7	x		x	x x
*15122	P/N Individual	M	E	U	3.3	6	x	x	x	x x
15128	West Crooked CK.	M	E	U	1.0	1	x	x	x	x x
*20010	Blind Canyon	M	E	U	0.0	3	x	x	x	x
20011	Bergum Individual	M	N	U	1.4	0				x x
20014	Brown Coulee	M	P	U	0.8	0	x		x	x x
20026	Demars	M	E	U	0.0	1	x	x	x	x

Judith Resource Area (continued)

Allot			Stream Water		Alternative					
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D E
20030	Leonard Individual	M	E	U	0.0	3	x	x	x	x
*20031	Woodhawk Individual	M	E	U	0.0	22	x	x	x	x x
20033	Dog CK Individual	M	E	U	1.6	0	x	x	x	x x
20037	Armells Individual	M	P	U	4.8	2	x			x x x
*20045	Mattuschek IND.	M	E	U	0.0	7	x	x	x	x x
*20046	Knox River IND.	M	E	U	0.0	1	x	x	x	x
20051	Judith River IND.	M	P	U	2.5	0	x		x	x x
20070	Two Calf Individual	M	E	U	0.0	14	x	x	x	x x
20071	Reed Coulee IND.	M	E	U	0.0	5	x	x	x	x x
*20081	W. Stulc IND.	M	E	U	2.0	5	x	x	x	x x
10023	Arntzen Individual	M	E	U	0.0	2	x	x	x	x
12601	Fords Creek IND.	M	E	U	1.8	3	x	x	x	x x
12700	Forge Common	M	E	U	1.8	1	x	x	x	x x
02618	Eickhoff IND.	M	N	U	0.0	1				x
02626	Grass Range AMP	M	E	U	0.0	2	x	x	x	x
12806	Bald Butte AMP	M	E	U	0.3	4	x	x	x	x
04824	Benson IND.	M	P	U	3.0	1	x		x	x x
04839	Dutton IND.	M	E	U	0.4	2	x	x	x	x
15130	Koenig IND.	M	P	U	0.6	1	x		x	x x
04841	Hanson Place IND.	M	P	U	4.5	4	x		x	x x
04842	Manuel IND.	M	P	U	1.4	0	x		x	x x
04843	Meserve IND.	M	P	U	2.0	2	x		x	x x
04844	Cat Creek AMP	M	E	U	1.7	1	x	x	x	x x
04852	Solf Brothers	M	E	U	3.9	2	x	x	x	x x
15040	Bartlett IND.	M	E	U	3.2	2	x	x	x	x x
15043	Bassett IND.	M	P	U	0.0	3	x		x	x
04858	Bohn Ranch IND.	M	N	U	1.3	3				x x
15064	Sheep Wagon Allot.	M	E	U	0.0	2	x	x	x	x
05057	Gardner IND.	M	P	U	5.7	8	x		x	x x
04849	FCC IND.	M	P	U	1.3	8	x		x	x x
15147	Barney Place	M	E	U	0.0	10	x	x	x	x x
15059	Big Sky Allot.	M	E	U	1.8	11	x	x	x	x x
15063	Eager Ranch	M	P	U	0.0	3	x		x	x
15066	Eike IND.	M	P	U	0.3	2	x		x	x
04870	Lower Blood Creek	M	E	U	1.3	2	x	x	x	x x
15153	EV Brady IND.	M	E	U	0.0	2	x	x	x	x
15072	Dave Hedman IND.	M	P	U	0.0	2	x			x
15146	North Flatwillow	M	E	U	5.0	9	x	x	x	x x
04480	J. Iverson IND.	M	P	U	0.0	2	x		x	x
05018	Johnson IND.	M	P	U	6.7	0	x		x	x x
15081	C.K. Cattle CO.	M	P	U	0.8	0	x		x	x x
15078	Kimmel IND.	M	E	U	0.0	2	x	x	x	x
04884	Joe King and Sons	M	E	U	1.0	8	x	x	x	x x
15016	Marks IND.	M	E	U	1.9	5	x	x	x	x x
05083	Trent Browning IND.	M	P	U	0.0	4	x		x	x
15085	Mlekush IND.	M	N	U	0.0	1				x
04891	Bender AMP	M	E	U	2.3	2	x	x	x	x x
04898	Reynolds IND.	M	P	U	1.0	0	x		x	x x
04894	Schultz IND.	M	P	U	0.0	3	x		x	x
04896	Sikveland IND.	M	E	U	5.5	11	x	x	x	x x
15089	Solf Brothers IND.	M	E	U	0.0	3	x	x	x	x
15048	P.M. Teigen IND.	M	P	U	0.0	3	x		x	x
15109	Teigen Land/Live IND	M	P	U	0.0	10	x		x	x x
15019	Bohn IND.	M	E	U	0.0	1	x	x	x	x
05017	Weingart IND.	M	E	U	2.5	8	x	x	x	x x
15051	Socha(Estes) IND.	M	E	U	1.0	7	x	x	x	x x
14969	Socha(Jackson) IND.	M	P	U	0.0	9	x		x	x x
04957	Iverson IND.	M	E	U	0.6	14	x	x	x	x x
04959	Matovich IND.	M	P	U	3.8	1	x		x	x x
04960	Marks IND.	M	P	U	4.0	4	x		x	x x
15028	Two Crow(Spear) IND.	M	P	U	6.8	5	x		x	x x
15031	Tresch Chain Buttes	M	P	U	0.0	6	x		x	x x

Judith Resource Area (continued)

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
04967	Weaver IND.	M	P	U	0.0	3	x		x	x	
15013	Swinging H. IND.	M	P	U	6.5	4	x		x	x	x
15115	Browning IND.	M	E	U	1.8	1	x	x	x	x	x
15151	Hughe Brother IND.	M	P	U	0.0	4	x		x	x	
09653	Able Place	M	P	U	0.0	2	x		x	x	
09693	Dostal AMP	M	E	U	0.0	6	x	x	x	x	x
09703	Ellis IND.	M	P	U	0.0	3	x		x	x	
09753	Koski IND.	M	P	U	0.0	1	x		x	x	
*09785	Flat Creek Allot.	M	E	U	0.0	2	x	x	x	x	

Phillips Resource Area

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
5073	Eklund Coulee	M	PT	U	1.2	1			x	x	x
5097	Black Coulee	M	PT	U	0.0	3			x	x	
5106	Shed Coulee	M	PT	U	1.0	3			x	x	x
5111	Little Cottonwood Ck	M	E	U	0.5	11	x	x	x	x	x
5316	Saco Hills	M	PT	U	0.0	12			x	x	x
5319	Upper Second Creek	M	PT	U	0.0	4			x	x	
5320	Thomas Coulee	M	PT	U	0.0	3			x	x	
5339	Crooks Coulee	M	E	U	0.0	9	x	x	x	x	x
5351	Riegal Coulee	M	PT	U	0.0	1			x	x	
5353	Lower Moss Coulee	M	PT	U	3.5	0			x	x	x
5412	Shed Coulee	M	N	U	0.8	0				x	x
5433	Lone Tree Creek	M	E	U	0.0	4	x	x	x	x	
5438	North Thomas Coulee	M	PT	U	1.5	2			x	x	x
5458	Coal Mine Coulee	M	E	U	0.0	10	x	x	x	x	x
5607	North Cabin Creek	M	P	U	0.0	3	x		x	x	
*5609	Cabin Creek	M	E	U	4.3	7	x	x	x	x	x
5611	Upper Cyprian Creek	M	P	U	0.0	2	x		x	x	
5614	Upper Beauchamp Cr.	M	E	U	0.0	5	x	x	x	x	x
5658	North Fork Telegraph	M	E	U	0.0	3	x	x	x	x	
5660	Larb Hills	M	P	U	3.0	3	x		x	x	x

Group 3 = I Allotments and Meeting Objectives:

Valley Resource Area

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
4000	Upper Crow Creek	I	E	Y	4.5	8	x	x	x	x	x
4003	Upper Eastfork Crow	I	E	Y	5.0	12	x	x	x	x	x
4008	Westfork Bluff CR.	I	E	Y	2.0	18	x	x	x	x	x
4009	Chambers Creek	I	E	Y	0.5	3	x	x	x	x	x
4019	Snake Creek	I	P	Y	4.0	11	x		x	x	x
4025	Southfork Rock Creek	I	P	Y	3.0	15	x		x	x	x
4041	Anderson-Ojuel	I	E	Y	1.5	25	x	x	x	x	x
4053	Eastfork Willow Cr.	I	E	Y	4.5	23	x	x	x	x	x
4054	Southfork Bitter Cr.	I	E	Y	4.0	14	x	x	x	x	x
4069	Lower Unger Coulee	I	E	Y	0.3	1	x	x	x	x	
4071	Upper Canyon Creek	I	E	Y	3.0	14	x	x	x	x	x
4519	Larb Creek	I	E	Y	1.0	20	x	x	x	x	x
4542	Antelope Creek	I	PT	Y	0.5	6			x	x	x
4571	Granp Coulee	I	E	Y	4.5	31	x	x	x	x	x
4572	Corral Coulee	I	E	Y	0.5	14	x	x	x	x	x
4574	Miller Coulee	I	E	Y	0.2	33	x	x	x	x	x
4581	Lone Tree Creek	I	E	Y	9.9	53	x	x	x	x	x
4707	Eastfork Crow Creek	I	E	Y	10.4	18	x	x	x	x	x
4711	North Willow Creek	I	E	Y	2.0	14	x	x	x	x	x
4718	Upper Willow Creek	I	E	Y	21.0	37	x	x	x	x	x

Group 4 = M Allotments and Meeting Objectives:

Valley Resource Area

Allot No.	Allotment Name	MGT	PLN	OBJ	Stream Water		Alternative				
					Miles	No.	A	B	C	D	E
4001	Crow Creek	M	PT	Y	2.0	3			x	x	x
4006	Bluff Creek	M	PT	Y	0.5	4			x	x	x
4010		M	PT	Y	0.5	9			x	x	x
4012	Lower Tomato Creek	M	E	Y	1.0	7	x	x	x	x	x
4022	Lower Bluff Creek	M	E	Y	2.5	18	x	x	x	x	x
4083		M	PT	Y	0.3	0			x	x	
4301	Upper Buggy Creek	M	E	Y	3.3	22	x	x	x	x	x
4576	Lower Willow Creek	M	E	Y	4.0	10	x	x	x	x	x
4585	Lewis Reservoir	M	E	Y	1.5	24	x	x	x	x	x
4588	Timber Creek	M	E	Y	4.0	13	x	x	x	x	x
4589	Southfork Willow Cr.	M	E	Y	6.0	14	x	x	x	x	x
4590	Willow Creek	M	E	Y	8.0	77	x	x	x	x	x
4704		M	PT	Y	1.0	0			x	x	x
4709		M	PT	Y	1.0	1			x	x	x
4713	Lower Crow Creek	M	E	Y	1.0	7	x	x	x	x	x
4715	East Rock Creek	M	E	Y	1.0	2	x	x	x	x	x
4716	Jones Coulee	M	E	Y	3.3	10	x	x	x	x	x
4717	Willow Creek	M	PT	Y	2.0	7			x	x	x
4727		M	PT	Y	0.5	0			x	x	x

Group 5 = C Allotments and Not Meeting Objectives:

Valley Resource Area

Allot No.	Allotment Name	MGT	PLN	OBJ	Stream Water		Alternative				
					Miles	No.	A	B	C	D	E
4044		C	PT	U	0.0	1			x	x	
4091	Lower Bear Creek	C	PT	U	0.0	1			x	x	
4103		C	N	U	0.0	1				x	
4108	Upper Martin Coulee	C	N	U	0.0	1				x	
4118	Mooney Coulee	C	N	U	0.0	1				x	
4205	Butch Coulee	C	N	U	0.0	1				x	
4521	Upper Buffalo Coulee	C	PT	U	0.0	1			x	x	
4522	Buffalo Coulee	C	N	U	0.0	1				x	
4541	Lower Hay Coulee	C	PT	U	0.0	1			x	x	
4543	Lower Antelope Cr.	C	PT	U	0.0	4			x	x	
4555	Bullock Coulee	C	PT	U	0.5	4			x	x	x
4556	Hay Fever	C	PT	U	0.0	1			x	x	
4560	Lower Brazil Creek	C	PT	U	0.5	3			x	x	x
4569		C	N	U	0.0	1				x	
4653	West Coal Creek	C	N	U	0.0	1				x	

Judith Resource Area

Allot No.	Allotment Name	MGT	PLN	OBJ	Stream Water		Alternative				
					Miles	No.	A	B	C	D	E
02041	George Kormarek IND.	C	N	U	0.0	1				x	
02003	Cimrhakl IND.	C	N	U	2.1	0				x	x
02010	Jackson IND.	C	N	U	0.0	1				x	
02012	Jordon Individual	C	N	U	1.8	0				x	x
02020	D&G Rindal Common	C	N	U	0.0	1				x	
02028	Hanson Flat/Mauland	C	N	U	0.0	4				x	
02032	Satterefield IND.	C	N	U	0.0	2				x	
02511	Weaver IND.	C	N	U	0.0	2				x	
02514	Pitman IND.	C	N	U	0.9	0				x	x
10027	Judith River IND.	C	N	U	0.0	1				x	
10041	Heggen Individual	C	N	U	0.0	2				x	
15097	Smith IND.	C	N	U	0.0	1				x	
20005	Morgan IND.	C	N	U	0.0	1				x	
20007	Benes Individual	C	N	U	0.0	1				x	
20008	W. Benes Individual	C	N	U	0.0	1				x	
20017	Holliday Individual	C	N	U	2.0	0				x	x

Judith Resource Area (continued)

Allot					Stream Water		Alternative				
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
20018	Tuss Individual	C	N	U	0.0	1				x	
20028	Donisthrope Individu	C	N	U	0.0	1				x	
20034	Green/Royce IND.	C	N	U	0.0	1				x	
20050	Schifler IND.	C	N	U	0.0	1				x	
20052	Linse IND.	C	N	U	0.0	1				x	
20057	Mendel IND.	C	N	U	0.0	3				x	
20063	Norman Ranch IND.	C	N	U	0.8	0				x	x
20072	Pertanek IND.	C	N	U	2.5	2				x	x
20074	Popnoe IND.	C	N	U	0.0	2				x	
20079	A. Stulc IND.	C	N	U	1.0	0				x	x
20080	Stulc IND.	C	N	U	0.0	1				x	
20087	Udelhoven/Econom IND	C	N	U	1.5	0				x	x
20097	Arthur IND.	C	N	U	0.0	1				x	
20100	Arthur INDIVIDUAL	C	N	U	0.0	1				x	
20044	Kinkelaar IND.	C	N	U	0.0	1				x	
12602	Blackmore IND.	C	N	U	0.0	1				x	
12604	Charbonneau IND.	C	N	U	0.0	1				x	
02605	Seilstad IND.	C	N	U	0.0	1				x	
02606	D. Cox IND.	C	N	U	0.0	3				x	
02682	Descheemaeker IND.	C	N	U	0.0	1				x	
02609	Fox IND.	C	N	U	2.5	1				x	x
02611	Degner IND.	C	N	U	0.7	1				x	x
02616	Larson IND.	C	N	U	0.0	1				x	
02619	Eike Place/Wagner	C	N	U	0.0	1				x	
02620	Richard/Stahl IND.	C	N	U	0.0	1				x	
02624	Keefer IND.	C	N	U	0.0	1				x	
02631	Hala IND.	C	N	U	0.0	1				x	
02633	Heil IND.	C	N	U	0.0	1				x	
02634	Redding IND.	C	N	U	0.0	1				x	
02632	Vlastelic.	C	N	U	0.0	2				x	
02635	Holzer IND.	C	N	U	0.0	1				x	
02636	Horyna IND.	C	N	U	0.0	4				x	
02638	Kalal IND.	C	N	U	0.0	2				x	
02642	Lewis Bros. IND.	C	N	U	0.0	4				x	
02643	Lindquist IND.	C	N	U	0.0	1				x	
02644	Three Links IND.	C	N	U	0.0	1				x	
02646	Maruska IND.	C	N	U	0.0	2				x	
02647	Matovich IND.	C	N	U	0.0	1				x	
02649	Rife IND.	C	N	U	0.0	3				x	
02653	Munson IND.	C	N	U	0.0	3				x	
02657	Noble IND.	C	N	U	0.0	2				x	
02659	Peters IND.	C	N	U	0.2	1				x	
02664	Ryan IND.	C	N	U	0.0	3				x	
02665	Adams IND.	C	N	U	0.0	1				x	
02666	Schulz IND.	C	N	U	0.0	2				x	
02667	Shelternook Ranch	C	N	U	0.0	1				x	
02670	T. and D. Siroky IND	C	N	U	0.0	2				x	
02671	R. Smith IND.	C	N	U	0.0	2				x	
02672	Stanley IND.	C	N	U	0.0	2				x	
02679	Moulton Place IND.	C	N	U	0.0	1				x	
02680	First Cont. Corp.	C	N	U	0.0	2				x	
02802	Ahlgren IND.	C	N	U	0.0	2				x	
12804	Degner IND.	C	N	U	0.0	1				x	
02809	Finkbeiner IND.	C	N	U	0.0	2				x	
02811	D. Fleharty IND.	C	N	U	0.0	1				x	
02814	Isaacs IND.	C	N	U	0.0	1				x	
02817	Lankutis IND.	C	N	U	0.0	2				x	
02821	N Bar N IND.	C	N	U	0.0	1				x	
02830	J. Schultz IND.	C	N	U	0.0	1				x	
04827	Fraser Land & Live	C	N	U	0.0	1				x	
04831	Shaw IND.	C	N	U	0.0	2				x	
04853	Manuel Ranch INC.	C	N	U	0.0	2				x	

Judith Resource Area (continued)

Allot No.	Allotment Name	MGT	PLN	OBJ	Stream Water		Alternative				
					Miles	No.	A	B	C	D	E
04854	Box Elder L & L IND.	C	N	U	0.0	1				x	
15023	FCC IND.	C	N	U	0.0	10				x	x
15069	Hale Ranch IND.	C	N	U	0.0	3				x	
04874	Doug Delaney IND.	C	N	U	0.0	1				x	
04876	Hill IND.	C	N	U	0.0	1				x	
15139	Jack Hughes IND.	C	N	U	6.3	0				x	x
15070	Silver Sage Ranch	C	N	U	0.0	2				x	
04886	Lewis Bros. IND.	C	N	U	0.0	3				x	
04890	Nebraska	C	N	U	0.0	5				x	x
04901	Petrolia Bench IND.	C	N	U	0.0	1				x	
14903	D. Hale IND.	C	N	U	0.0	1				x	
14904	Weaver IND.	C	N	U	0.0	1				x	
14910	Delaney IND.	C	N	U	0.0	3				x	
14912	M. Delaney IND.	C	N	U	0.0	1				x	
02515	Sikveland Cr. Ck.IND	C	N	U	0.0	1				x	
15027	Socha(McArthur) IND.	C	N	U	0.9	0				x	x
14988	Damschen IND.	C	N	U	0.0	1				x	
15003	F. Hill IND.	C	N	U	0.0	3				x	
05005	Kiehl IND.	C	N	U	0.0	1				x	
25007	W. Kincheloe IND.	C	N	U	0.1	0				x	
15009	Maxwell IND.	C	N	U	0.0	3				x	
15118	L.Goffena IND.	C	N	U	0.0	2				x	
15119	A. Goffena IND.	C	N	U	0.0	1				x	
15121	Teini IND.	C	N	U	0.0	1				x	
09683	Coppedge IND.	C	P	U	0.0	1	x		x	x	
09755	Laabarre IND.	C	P	U	0.0	1	x		x	x	
09782	Ebeling IND.	C	N	U	0.0	1				x	

Phillips Resource Area

Allot No.	Allotment Name	MGT	PLN	OBJ	Stream Water		Alternative				
					Miles	No.	A	B	C	D	E
5000	Corner	C	N	U	0.0	1				x	
5025	Middle Frenchman	C	N	U	1.3	0				x	x
5028	West Cottonwood	C	N	U	0.0	2				x	
5032	Johns Coulee	C	N	U	0.0	11				x	x
5040	Wren Coulee	C	N	U	0.0	8				x	x
5045	All Pronto	C	N	U	0.0	35				x	x
5046	North Cowie Coulee	C	N	U	0.0	19				x	x
5055	Martin Lake Coulee	C	N	U	0.0	2				x	
5058	North Dibble Coulee	C	N	U	0.0	14				x	x
5060	South Dibble Coulee	C	N	U	0.0	1				x	
5063	Sink Coulee	C	N	U	0.5	3				x	x
5070	Stinky Creek	C	N	U	0.0	1				x	
5072	Upper E. Fk. Stinky	C	N	U	0.0	3				x	
5074	Corral Coulee	C	N	U	1.2	1				x	x
5076	Pan Handle Coulee	C	N	U	0.2	0				x	
5077	Ash Coulee	C	N	U	0.0	1				x	
5078	Rattlesnake Coulee	C	N	U	0.0	5				x	x
5080	Eastfork Stinky Crk.	C	N	U	2.0	6				x	x
5088	Lower Lush Coulee	C	N	U	0.2	2				x	
5090	Lush Coulee	C	N	U	0.0	1				x	
5101	Upper Mud Creek	C	N	U	0.0	7				x	x
5102	Upper Northfork	C	N	U	0.0	1				x	
5103	South Joiner Coulee	C	N	U	0.0	6				x	x
5112	Bughouse Coulee	C	N	U	0.0	5				x	x
5114	River Unit	C	N	U	1.2	0				x	x
5115	Big Bend	C	E	U	0.2	0	x	x	x	x	
5118	Lower Stinky Creek	C	N	U	0.8	1				x	x
5122	Rock Coulee	C	N	U	0.8	0				x	x
5129	Lower Whitewater	C	N	U	0.3	0				x	
5134	Assiniboine West	C	N	U	0.0	1				x	
5135	Southfork Garland	C	N	U	0.0	1				x	

Phillips Resource Area (continued)

Allot			Stream Water			Alternative					
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
5137	Goertz Coulee	C	N	U	0.0	1				x	
5138	East Sheep Coulee	C	N	U	0.0	1				x	
5139	Sheep Coulee	C	N	U	0.0	2				x	
5142	Wetland	C	N	U	0.0	6				x	x
5150	Upper Exeter Creek	C	N	U	0.0	1				x	
5151	Dry Coulee	C	N	U	0.0	2				x	
5156	Lower Assiniboine	C	N	U	0.0	1				x	
5301	Dry Lake	C	N	U	0.0	4				x	
5303	Canty Coulee	C	N	U	0.0	3				x	
5305	Lone Tree Sag	C	N	U	0.0	1				x	
5308	McNeil Slough	C	N	U	0.6	0				x	x
5312	Saco Dump	C	N	U	0.8	4				x	x
5315	Saco	C	N	U	0.7	3				x	x
5317	North Cactus Flat	C	N	U	0.0	1				x	
5322	So. Nelson Reservoir	C	N	U	0.0	1				x	
5328	Rocky Point	C	N	U	0.0	11				x	x
5332	Dodson Canal	C	N	U	0.0	3				x	
5336	South Bowdoin	C	N	U	0.0	3				x	
5345	Second Creek	C	E	U	0.0	6	x	x	x	x	x
5357	Rock Corral	C	N	U	0.5	1				x	x
5359	Upper Tetrault Coul.	C	N	U	0.0	1				x	
5364	Middle Black Coulee	C	N	U	0.0	1				x	
5365	Junction	C	N	U	0.0	8				x	x
5366	Waters Holding Past.	C	N	U	0.0	6				x	x
5367	East Alkali	C	N	U	0.3	3				x	
5368	Beavers	C	E	U	0.0	6	x	x	x	x	x
5371	East Bench	C	N	U	0.2	0				x	
5373	Lower Half-Way Coul.	C	N	U	0.8	1				x	x
5376	Nice Pond	C	N	U	0.0	4				x	
5378	Upper Wind Coulee	C	N	U	0.0	2				x	
5379	Wind Coulee	C	N	U	0.0	1				x	
5380	Upper Cow Creek	C	N	U	0.0	1				x	
5383	Upper West Alkali	C	N	U	0.0	1				x	
5384	North Wild Horse	C	N	U	0.0	1				x	
5391	N. Overflow Coulee	C	N	U	0.5	6				x	x
5392	Bennett Lake	C	N	U	0.0	3				x	
5409	Lower D.H.S. Creek	C	N	U	1.0	0				x	x
5410	D.H.S. Creek	C	N	U	0.5	1				x	x
5418	Wildhorse	C	N	U	0.0	1				x	
5419	North Cabbage Coulee	C	N	U	0.0	1				x	
5420	Big Warmspring Creek	C	N	U	0.0	2				x	
5421	Cabbage Coulee	C	N	U	0.0	3				x	
5422	Spring Coulee	C	N	U	0.0	1				x	
5423	South Spring Coulee	C	N	U	0.0	2				x	
5425	Upper White Rock	C	N	U	0.0	2				x	
5435	Buckley Lake	C	N	U	0.0	1				x	
5448	Garey Coulee	C	N	U	0.0	4				x	
5461	South Armstrong Coul	C	N	U	0.0	2				x	
5463	Lower Tallow Creek	C	N	U	0.0	1				x	
5465	Upper Tressler Coul.	C	N	U	0.0	3				x	
5656	Upper Lonetree Coul.	C	PT	U	0.0	1			x	x	
5117	Upper Exeter Creek	C	N	U	1.1	0				x	x

Group 6 = C Allotments and Meeting Objectives:

Valley Resource Area

Allot			Stream Water			Alternative					
No.	Allotment Name	MGT	PLN	OBJ	Miles	No.	A	B	C	D	E
4530	Lower Coon Coulee	C	N	Y	0.2	0				x	
4570		C	N	Y	0.3	0				x	
4724	Lower Rock Creek	C	N	Y	0.3	5				x	x

*Indicates allotments in the Judith and Phillips RAs within the UMNWSR Corridor.

APPENDIX K

PRAIRIE DOGS AND BLACK-FOOTED FERRET MANAGEMENT

Black-tailed Prairie Dog Towns in the Judith, Valley and Phillips Resource Areas

This appendix shows the prairie dog towns that would be effected under each alternative. Prairie dog towns on non-BLM lands are shown if they are within a BLM allotment and/or would be within the area identified for black-footed ferret reintroduction. The first line above each group of towns shows the allotment number, allotment name and permittee. The alternative codes are as follows:

- E = town identified for elimination
- F = town identified for black-footed ferret reintroduction
- S = town identified for prairie dog shooting
- X = town that would be allowed to expand
- M = town identified for management (maintain outside the black-footed ferret reintroduction area)
- * = town on non-BLM land that would be within the black-footed ferret reintroduction area.

The 1% BLM Acres, 10% BLM Acres, Low Mgmt Level and High Mgmt Level are defined as follows:

1% BLM ACRES: This is 1% of the total BLM acres in an allotment. It would be the maximum allowable prairie dog acres in an allotment under Alternative A.

10% BLM ACRES: This is 10% of the total BLM acres in an allotment. It would be the maximum allowable prairie dog acres in an allotment under Alternative D.

LOW MGMT LEVEL: This would be the minimum acreage on a managed town. It is based on a 1984 survey.

HIGH MGMT LEVEL: This would be the maximum acreage on a managed town. It is based on a 1988 survey plus 10%.

JUDITH RESOURCE AREA

TOWN NUMBER	APPROX LOCATION TN RN SECTION		ALLOT	1%	10%	PRAIRIE DOG ACREAGE				LOW	HIGH	ALT A	ALT B	ALT C	ALT D	ALT E	
			BLM ACRES	BLM ACRES	BLM ACRES	BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES	MGMT LEVEL	MGMT LEVEL						
* 5025 MUSSELSHELL TRAIL COMMON - TWO CROW-SOCHA																	
B-001	20	28	1 SENW	14107	141	1411	38	0	0	38	0	0	E	E	E	X	M
B-002	20	28	3 SENE	14107	141	1411	20	0	0	20	0	0	E	E	E	X	M
B-003	21	28	32SESE	14107	141	1411	13	0	0	13	0	0	E	E	E	X	M
B-005	21	28	31SWSE	14107	141	1411	0	0	6	6	0	0					
B-006	21	27	35SESW	14107	141	1411	0	0	6	6	0	0					
B-007	21	27	32SESE	14107	141	1411	0	0	90	90	0	0					

* 5031 TWO CROW-TRESCH PASTURE - TWO CROW																
P-004	20 28 9	NWSW	4041	40	404	0	0	10	10	0	0					

PHILLIPS RESOURCE AREA

TOWN NUMBER	APPROX TN RN	LOCATION SECTION	ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE DOG ACREAGE				LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E
						BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES							
* MALTA IRRIGATION DISTRICT																
BR-01	32 32	22NW	0	0	0	67	0	0	67	58	74					
BR-02	32 32	22SE	0	0	0	3	0	0	3	12	3					

TOWN NUMBER	APPROX LOCATION TN RN SECTION	ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE DOG ACREAGE BLM STATE PRIVATE TOTAL ACRES ACRES ACRES ACRES	LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E
* JOHN LUNDSTRUM P-036	30 27 32	0	0	0	0 0 99 99	0	0					
* ERVIN CROWDER P-068	24 31 22	0	0	0	0 0 32 32	0	0				*	*
* MANSON FRYE P-069	25 27 27	0	0	0	0 0 17 17	0	0				*	*
* LYLE BROADBROOKS P-072	36 33 24	0	0	0	0 0 64 64	0	0					
* WILLIAM KIENENBERGER P-074	31 27 27	0	0	0	0 0 5 5	0	0					
* JOE NICHOLSON P-076	29 27 06	0	0	0	0 0 60 60	0	0					
* MATADOR RANCH INC. P-078	25 27 20/21	0	0	0	0 0 29 29	0	0				*	*
* WALTER NORMAN P-088	27 27 06	0	0	0	1 0 46 47	0	52	E	E	E	F	F
* 5112 BUGHOUSE COULEE - COTTONWOOD GRAZING ASSOCIATION B-001	32 30 14/23	1665	17	166	104 0 48 152	147	167	E	E	S	S	S
* 5308 MCNEIL SLOUGH - DOANE-WESTERN B-002	32 32 16/17/18	216	2	22	203 34 21 258	232	284	E	E	E	S	S
* 5311 NELSON RESERVOIR - ROSS ROBINSON BR-03	32 32 29/30/31NE	78	1	8	163 0 12 175	191	193					
BR-04	32 32 31SE/32	78	1	8	45 0 0 45	58	50					
* 5328 ROCKY POINT - SID HOULD AND GARY YOUNG B-003	29 27 09/10	1810	18	181	1 0 0 1	113	1	E	E	E	S	S
P-075	30 26 25	1810	18	181	0 0 166 166	0	0					
* 5333 SOUTH DODSON CANAL - AGNES YOUNG B-004	30 29 30/31/32	40	0	4	97 0 72 169	177	186	E	E	S	F	F
* 5354 GUSTON COULEE - LARRY MATHHEWS B-005	29 32 28/33/34	9140	91	914	140 0 5 145	141	160	M	E	S	S	S
* 5369 SOUTH ALKALI CREEK - F. LEE ROBINSON B-006	29 29 11	2600	26	260	12 0 0 12	9	13	E	E	E	S	S
* 5374 HALFWAY COULEE - CLARENCE JACOBSON B-007	29 28 13	2190	22	219	39 0 0 39	25	43	E	E	E	F	F
P-034	29 28 23NESW	2190	22	219	0 0 1 1	0	0					*
P-064	29 28 23NWSW	2190	22	219	0 0 1 1	0	0					*
* 5376 NICE POND - DON HOULD B-008	29 28 16/17/20/21	705	7	70	162 10 31 203	184	223	E	E	S	F	F
B-107	29 28 04	705	7	70	4 0 1 5	6	6	E	E	E	S	F
* 5384 NORTH WILDHORSE - JOHN WILKE B-009	28 27 17/20	1142	11	114	107 0 109 216	212	238	E	E	S	F	F
P-031	28 27 06	1142	11	114	11 0 156 167	167	184	E	E	S	F	F
P-032	28 27 07/08/17/18	1142	11	114	0 0 37 37	0	0				*	*

TOWN NUMBER	APPROX LOCATION TN RN SECTION	ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE DOG ACREAGE				LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E
					BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES							
* 5386 TRESSLER COULEE - LLOYD KNUDSEN															
B-134	28 27 32	4154	42	415	33	0	87	120	0	132	E	E	S	F	F
P-053	28 27 32/33	4154	42	415	0	0	193	193	0	0				*	*
P-054	27 27 22/23/27	4154	42	415	0	0	145	145	0	0				*	*
P-087	28 27 34	4154	42	415	1	0	0	1	0	1	E	E	S	S	F
P-090	28 27 26	4154	42	415	10	0	126	136	0	150	E	E	S	F	F
* 5387 WEST ALKALI CREEK - MILK RIVER GRAZING ASSOCIATION															
B-010	28 27 11	9871	99	987	8	0	0	8	4	9	E	E	E	S	F
B-011	28 28 10/15	9871	99	987	2	0	7	9	8	10	E	E	E	S	F
B-105	28 28 08/09	9871	99	987	18	0	0	18	12	20	E	E	E	F	F
B-121	28 28 07	9871	99	987	9	0	7	16	4	18	E	E	E	F	F
P-018	28 28 03SW/4/9	9871	99	987	0	0	19	19	0	0					*
P-019	29 28 27	9871	99	987	0	0	1	1	0	0					*
P-020	28 27 03/10/11	9871	99	987	5	0	106	111	90	122	E	E	S	F	F
P-035	28 27 01	9871	99	987	0	0	75	75	0	0				*	*
P-066	28 28 03NNW	9871	99	987	0	0	3	3	0	0					*
P-067	29 28 32	9871	99	987	1	0	0	1	4	1	E	E	E	S	F
* 5390 UPPER OVERFLOW COULEE - HUBERT AND TOM SIMANTON															
B-113	28 30 32	0	27	268	19	0	0	19	15	0	E	E	E	F	F
B-135	27 30 05/06	2682	27	268	43	0	42	85	0	94	E	E	S	F	F
* 5402 LOWER SEVEN MILE - BRUCKNER FARMS, INC.															
BR-05	28 32 23/24	2682	27	268	28	0	15	43	0	47					
* 5411 BEAVER CREEK - DOANE-WESTERN															
P-046	26 31 25/35/36	4781	48	478	0	2	1	3	0	0					
* 5415 OVERFLOW COULEE - GLENN MEISDALEN															
B-013	26 30 08	7791	78	779	97	0	24	121	85	133	M	E	S	S	S
P-073	27 30 03	7791	78	779	0	0	8	8	0	0					
* 5416 SANFORD COULEE - LAZY J5 RANCH INC.															
B-014	27 29 32/33	11925	119	1192	181	0	0	181	112	199	M	E	S	F	F
B-098	27 29 02/03	11925	119	1192	206	0	0	206	200	227	E	E	E	F	F
B-099	27 29 21	11925	119	1192	4	0	0	4	3	4	E	E	E	F	F
B-100	27 29 07/18	11925	119	1192	206	0	0	206	184	227	E	E	S	F	F
* 5417 WHITEROCK COULEE - LAZY J5 RANCH INC.															
B-015	26 29 08/09/16/17	16787	168	1679	59	144	152	355	383	391	M	E	S	F	F
P-080	26 29 20	16787	168	1679	0	0	1	1	0	0					*
S-009	26 29 16	16787	168	1679	0	13	0	13	0	0				*	*
* 5418 WILDHORSE - WILLIE DOLL															
P-060	27 28 05	956	10	96	0	0	3	3	0	0					*
P-091	27 27 02/11	956	10	96	4	0	46	50	0	55	E	E	S	F	F
P-092	28 27 35	956	10	96	0	0	4	4	0	0					*
P-093	27 27 01	956	10	96	0	0	6	6	0	0					*
* 5419 NORTH CABBAGE COULEE - ROBERT TAYLOR															
P-055	27 28 28	650	6	65	0	0	54	54	0	0				*	*
* 5420 BIG WARM SPRING CREEK - WARREN TAYLOR															
B-016	26 27 05/06	1154	12	115	7	0	47	54	65	59	E	E	S	F	F
P-062	27 28 31	1154	12	115	0	0	4	4	0	0					*
* 5421 CABBAGE COULEE - LLOYD KNUDSEN															
P-056	26 28 08/09/16	1120	11	112	75	58	175	308	284	339	E	E	S	F	F

TOWN NUMBER	APPROX LOCATION TN RN SECTION		ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE DOG ACREAGE				LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E	
						BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES								
* 5423 SOUTH SPRING COULEE - WALTER NORMAN																	
B-017	27	26	11/12/13/14	522	5	52	66	0	47	113	113	124	E	E	S	F	F
B-018	27	26	13	522	5	52	0	0	32	32	0	0				*	*
* 5424 LITTLE WARM SPRING CREEK - MARTAWN VESETH HOLMAN																	
B-019	25	28	12	11967	120	1197	204	0	16	220	143	242	E	E	S	F	F
B-020	25	28	23/24/25/26	11967	120	1197	184	0	47	231	198	254	M	E	S	F	F
B-021	26	27	35/36	11967	120	1197	286	2	0	288	219	317	E	E	S	F	F
P-002	26	27	23/24/25/26	11967	120	1197	42	0	306	348	263	383	E	E	S	F	F
P-003	26	28	31	11967	120	1197	0	1	125	126	0	0				*	*
P-004	25	28	06/07	11967	120	1197	11	0	358	369	272	406	E	E	S	F	F
P-005	25	28	03	11967	120	1197	0	0	54	54	0	0				*	*
P-006	25	28	01	11967	120	1197	0	0	88	88	0	0				*	*
P-007	25	28	33/34	11967	120	1197	0	0	50	50	0	0				*	*
P-079	25	28	17	11967	120	1197	1	0	99	100	0	110	E	E	S	F	F
P-094	26	28	29	11967	120	1197	0	0	5	5	0	0				*	*
S-003	26	27	01	11967	120	1197	0	55	119	174	0	0				*	*
S-004	26	28	36	11967	120	1197	8	419	1	428	372	471	E	E	S	F	F
* 5427 NORTH FLAT CREEK - WILLIAM FRENCH																	
B-022	27	31	32/33	15594	156	1559	109	0	18	127	57	140	M	E	S	S	F
B-142	25	30	06	15594	156	1559	1	0	0	1	0	1	E	E	E	S	F
* 5435 BUCKLEY LAKE - KELLEY KOSS																	
B-122	25	32	12SWNE	694	7	69	3	0	4	7	20	8	E	E	E	S	S
* 5436 LONE HORSE COULEE - ADAM KOSS																	
P-037	24	32	09/10/15	7083	71	708	39	0	72	111	82	122	E	E	S	F	F
* 5437 SAGE CREEK - TOM WATSON																	
B-023	25	32	07/18	3093	31	309	49	0	9	58	130	64	E	E	S	F	F
* 5439 FLAT CREEK - DON HOLZHEY																	
B-024	25	31	16/21	13075	131	1308	88	101	0	189	140	208	M	E	S	F	F
B-025	25	31	08/09/16/17	13075	131	1308	37	15	0	52	47	57	E	E	S	F	F
B-026	25	31	14	13075	131	1308	96	0	0	96	97	106	E	E	S	F	F
B-027	25	31	03/10	13075	131	1308	6	0	2	8	12	9	E	E	E	S	F
* 5441 LOWER ALKALI CREEK - M+ CATTLE COMPANY																	
B-136	25	30	17	1216	12	122	4	0	0	4	0	4	E	E	E	S	S
S-016	25	30	16/21	1216	12	122	0	22	0	22	0	0					
* 5443 FIRST CREEK HALL - TROY BLUNT																	
B-145	24	30	09NENW	4228	42	423	4	0	0	4	0	4	E	E	E	S	S
* 5444 SCOTT COULEE - NOEL EMOND																	
B-143	25	29	31	2679	27	268	7	0	0	7	0	8	E	E	E	S	F
P-043	24	29	08/09	2679	27	268	6	0	10	16	15	18	E	E	E	F	F
* 5445 UPPER FIRST CREEK - LLOYD KNUDSEN																	
B-102	25	29	05/08	4179	42	418	59	0	0	59	53	65	E	E	S	F	F
P-089	25	29	21	4179	42	418	0	0	2	2	0	0				*	*
* 5446 PARROT COULEE - MATADOR RANCH INC.																	
B-028	25	27	12	2693	27	269	40	0	0	40	30	44	E	E	E	F	F
P-030	25	27	08/09	2693	27	269	0	0	15	15	0	0				*	*
* 5447 UPPER GAREY COULEE - ROBERT FRYE																	
B-075	24	28	13	11955	120	1196	32	0	0	32	16	35	E	E	E	F	F
P-009	24	28	02	11955	120	1196	0	0	4	4	0	0				*	*

TOWN NUMBER	APPROX LOCATION TN RN SECTION	ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE BLM ACRES	DOG STATE ACRES	ACREAGE PRIVATE ACRES	TOTAL ACRES	LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E
* 5448	GAREY COULEE - FRANCIS JACOBS														
P-047	24 28 15/22/23	800	8	80	2	0	26	28	51	0	E	E	E	F	F
* 5450	FIRST CREEK SCHOOL - BLUNT RANCHES INC.													*	*
B-029	24 29 28	1120	11	112	0	0	13	13	0	0					
* 5452	LONG COULEE - VESETH AND VESETH RANCH INC.														
B-030	24 30 16	8504	85	850	132	88	12	232	212	255	E	E	S	F	F
B-127	24 29 23/24/25/26	8504	85	850	129	0	32	161	223	177	E	E	S	F	F
B-128	24 29 33/34	8504	85	850	34	0	3	37	34	41	E	E	E	F	F
B-129	23 29 03	8504	85	850	42	0	1	43	34	47	E	E	E	F	F
B-130	24 29 32/33	8504	85	850	2	0	10	12	155	13	E	E	E	S	F
S-018	24 29 36/01	8504	85	850	39	42	0	81	0	89	E	E	S	F	F
* 5453	STRATTON COULEE - EDWIN KOSS														
B-031	24 30 12	8105	81	810	37	0	1	38	40	42	E	E	E	F	F
S-005	24 31 07	8105	81	810	0	54	13	67	0	0				*	*
* 5454	DOG CREEK - WILLIAM FRENCH														
B-032	24 31 12SE	2049	20	205	348	0	2	350	338	385	E	E	S	F	F
B-033	24 31 01/02	2049	20	205	51	0	3	54	107	59	E	E	S	F	F
S-011	25 31 36	2049	20	205	0	35	0	35	0	0				*	*
* 5455	LOWER DOG CREEK - SARANTHA SPENCER														
B-034	24 31 13/14	3115	31	312	75	0	11	86	81	95	E	E	S	F	F
B-035	24 31 11/14	3115	31	312	12	0	93	105	91	116	E	E	S	F	F
* 5457	UPPER DOG CREEK - MAY GRIMSLEY														
B-036	24 32 08/09	3491	35	349	156	0	34	190	185	209	E	E	S	F	F
B-139	24 32 08	3491	35	349	5	0	3	8	0	9	E	E	E	S	F
* 5459	PLUM CREEK - KELLY KOSS														
P-081	24 33 19	482	5	48	0	0	6	6	0	0				*	*
* 5600	PARROT LAKE - MATADOR RANCH INC.														
P-050	26 27 07/08	3079	31	308	0	0	56	56	0	0				*	*
P-051	26 26 12/13	3079	31	308	0	0	23	23	0	0				*	*
P-052	26 27 19	3079	31	308	0	0	10	10	0	0					*
* 5601	BEST COULEE - MATADOR RANCH INC.														
B-103	25 27 30/31	2735	27	274	180	0	1	181	113	199	E	E	S	F	F
* 5610	ANTELOPE CREEK - SQUARE BUTTE MITCHELL SCHWENKE														
P-039	23 23 13	45010	450	4501	0	0	1	1	0	0					
P-040	23 23 26	45010	450	4501	0	0	2	2	0	0					
* 5612	CYPRIAN - SQUARE BUTTE GRAZING ASSOCIATION														
B-037	23 24 17/18	15413	154	1541	77	0	0	77	88	85	M	E	S	F	F
B-038	23 24 20	15413	154	1541	14	0	0	14	5	15	E	E	E	F	F
B-132	23 24 27	15413	154	1541	43	0	0	43	0	47	E	E	E	F	F
P-026	23 23 24	15413	154	1541	0	0	78	78	0	0				*	*
P-044	24 24 35	15413	154	1541	0	0	41	41	0	0				*	*
P-045	24 25 23/26	15413	154	1541	0	0	11	11	0	0					*
S-012	24 24 36	15413	154	1541	0	0	13	13	0	0				*	*
* 5613	CAMP CREEK - MATADOR RANCH INC.														
B-039	23 26 08	3175	32	318	73	0	13	86	87	95	E	E	S	F	F
P-077	24 26 26/27/34	3175	32	318	0	68	247	315	0	0				*	*

TOWN NUMBER	APPROX LOCATION TN RN SECTION		ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE DOG ACREAGE				LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E
						BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES							
* 5615 WEST DRY FORK - MATADOR RANCH INC.																
B-040	24	27	29	14854	149	1485	92	0	1	93	20	102 E	F	F	F	F
B-041	23	27	01/02/12	14854	149	1485	493	0	0	493	495	542 M	F	F	F	F
B-042	23	28	05/08/09	14854	149	1485	239	0	0	239	219	263 E	F	F	F	F
B-043	23	28	07/18	14854	149	1485	251	0	0	251	225	276 E	F	F	F	F
B-044	23	28	19	14854	149	1485	43	0	0	43	21	47 E	F	F	F	F
B-045	23	28	05	14854	149	1485	80	0	0	80	69	88 E	F	F	F	F
B-046	23	28	05	14854	149	1485	2	0	0	2	0	2 E	E	E	S	F
B-047	24	27	36	14854	149	1485	18	63	0	81	85	89 E	F	F	F	F
* 5617 EAST DRY FORK - JACOBSON, JACOBS AND FRYE																
B-048	24	27	10/11/14/15	18672	187	1867	350	0	0	350	280	385 M	F	F	F	F
B-049	24	28	07/08/17/18	18672	187	1867	699	0	59	758	792	834 E	F	F	F	F
B-050	24	27	23	18672	187	1867	12	0	0	12	6	13 E	E	E	S	F
B-051	24	28	30	18672	187	1867	3	0	0	3	7	3 E	E	E	S	F
B-110	24	28	20	18672	187	1867	2	0	0	2	1	2 E	E	E	S	F
B-115	23	28	22	18672	187	1867	19	0	0	19	16	21 E	E	E	F	F
* 5618 UPPER GAREY COULEE - CLARENCE JACOBSON																
B-101	24	28	04/05/08/09	1551	16	155	119	0	1	120	82	132 E	F	F	F	F
P-070	24	28	11	1551	16	155	0	0	39	39	0	0			*	*
* 5619 LOWER GAREY COULEE - FRANCIS JACOBS																
B-116	24	28	34	345	3	34	7	0	1	8	9	9 E	E	E	S	F
* 5620 UPPER FOURCHETTE - LAZY JD CATTLE COMPANY																
B-052	23	28	01/12	3296	33	330	39	0	123	162	198	178 E	F	F	F	F
B-053	24	28	35/36	3296	33	330	3	1	2	6	0	0 E	E	E	S	F
P-059	23	28	13	3296	33	330	0	0	4	4	0	0				*
* 5621 UPPER C K CREEK - ROBERT FRYE																
B-078	23	27	18	11955	120	1196	10	0	31	41	31	45 E	E	F	F	F
* 5623 UPPER SEVEN MILE - LAZY JD CATTLE COMPANY																
B-054	23	26	12/13	3809	38	381	8	0	0	8	13	9 E	E	E	S	F
B-147	23	25	12	3809	38	381	14	0	4	18	0	20 E	E	E	F	F
* 5624 EAST ROCK CREEK - LAZY JD CATTLE COMPANY																
B-144	23	25	17SENE	4137	41	414	3	0	0	3	0	3 E	E	E	S	F
P-095	23	25	04NWSW	4137	41	414	1	0	7	8	0	9 E	E	E	S	F
* 5625 LAVELLE CREEK - SQUARE BUTTE GRAZING ASSOCIATION																
B-055	23	24	08/09	9726	97	973	27	0	1	28	20	31 E	E	E	F	F
B-057	23	25	17/18	9726	97	973	97	0	123	220	210	242 M	E	S	F	F
B-106	23	25	19SWSW	9726	97	973	1	0	0	1	2	1 E	E	E	S	F
B-133	23	25	19NWNW	9726	97	973	3	0	0	3	0	3 E	E	E	S	F
S-010	23	24	09/15/16	9726	0	973	41	155	0	196	214	216 E	E	S	F	F
* 5626 ROCK CREEK - PETERS AND KELSEY																
B-058	23	25	21/22	5774	58	577	4	0	1	5	35	6 E	E	E	S	F
B-059	23	25	28/33	5774	58	577	318	0	0	318	290	350 M	E	F	F	F
B-060	23	25	15/16	5774	58	577	65	43	0	108	180	119 E	E	S	F	F
P-028	23	25	30/31	5774	58	577	0	0	10	10	0	0				*

TOWN	APPROX LOCATION	ALLOT	1%	10%	PRAIRIE DOG ACREAGE				LOW	HIGH	ALT				
NUMBER	TN RM SECTION	BLM ACRES	BLM ACRES	BLM ACRES	BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES	MGMT LEVEL	MGMT LEVEL	A	B	C	D	E
* 5627	NICHOLS COULEE - LAZY JD CATTLE COMPANY														
B-061	23 25 35/36	28078	281	2808	276	68	0	344	378	378 M	E	F	F	F	F
B-062	23 26 30/31NWNW	28078	281	2808	186	0	0	186	197	205 E	E	F	F	F	F
B-063	23 26 31NENW/32	28078	281	2808	27	0	0	27	23	30 E	E	F	F	F	F
B-064	23 26 28	28078	281	2808	55	0	0	55	11	61 E	E	F	F	F	F
B-065	23 27 15/21/22	28078	281	2808	228	0	7	235	148	258 E	F	F	F	F	F
B-066	23 27 08/17	28078	281	2808	187	1	13	201	102	221 E	F	F	F	F	F
B-067	23 27 06	28078	281	2808	71	0	3	74	18	81 E	E	S	F	F	F
B-068	23 27 04/05	28078	281	2808	34	0	0	34	67	37 E	F	F	F	F	F
B-069	23 27 11/12	28078	281	2808	83	0	0	83	29	91 E	F	F	F	F	F
B-070	23 26 23/25/26	28078	281	2808	3	0	0	3	3	3 E	E	F	S	F	F
B-071	23 27 31	28078	281	2808	8	0	0	8	7	9 E	E	F	S	F	F
B-072	23 27 02/03/10/11	28078	281	2808	385	0	21	406	339	447 E	F	F	F	F	F
B-104	23 26 32	28078	281	2808	11	0	0	11	17	12 E	E	F	F	F	F
B-120	23 27 33	28078	281	2808	0	0	37	37	0	0				*	*
B-125	23 26 32	28078	281	2808	11	0	0	11	10	12 E	E	F	F	F	F
B-137	23 26 12	28078	281	2808	3	0	0	3	0	3 E	E	E	S	F	F
B-138	23 26 04	28078	281	2808	14	0	0	14	0	15 E	E	E	F	F	F
B-146	23 25 25/26	28078	281	2808	26	0	25	51	0	56 E	E	S	F	F	F
P-021	23 26 11/12	28078	281	2808	0	0	106	106	105	117				*	*
* 5628	BEAUCHAMP CREEK - ROBERT FRYE														
B-077	23 27 25/35/36	11915	119	1192	59	270	0	329	444	362 M	F	F	F	F	F
* 5631	CRUIKSCHANK - FRANCIS JACOBS														
B-073	23 28 31/32	11955	120	1196	87	0	0	87	109	96 M	F	F	F	F	F
B-074	23 28 34/35	11955	120	1196	134	0	26	160	118	176 E	F	F	F	F	F
P-011	23 28 24	11955	120	1196	12	0	189	201	147	221 E	E	S	F	F	F
P-012	23 28 23/26/27	11955	120	1196	0	0	19	19	0	0			*	*	*
P-013	23 28 26/27	11955	120	1196	1	0	81	82	46	90 E	F	F	F	F	F
* 5651	NORTH FOURCHETTE CREEK - BLUNT RANCHES INC.														
B-079	23 29 05	5360	54	536	29	0	0	29	25	32 E	F	F	F	F	F
B-080	23 29 03/04/09/10	5360	54	536	337	0	34	371	249	408 E	F	F	F	F	F
B-081	23 29 08/17/18	5360	54	536	231	0	0	231	94	0 E	F	F	F	F	F
P-008	23 28 25NWSW	5360	54	536	0	0	1	1	0	0					*
* 5652	THIRD CREEK - MUNCIE TAYLOR														
B-082	23 30 06/07	10128	101	1013	632	0	0	632	162	695 E	F	F	F	F	F
B-083	24 30 29/30/32	10128	101	1013	366	0	8	374	270	411 M	F	F	F	F	F
B-119	23 30 08	10128	101	1013	13	0	0	13	2	14 E	E	E	F	F	F
P-016	24 30 30/31	10128	101	1013	0	1	125	126	0	0	*	*	*	*	*
P-017	24 30 31	10128	101	1013	21	1	24	46	22	51 E	F	F	F	F	F
* 5653	LOWER THIRD CREEK - GENE BARNARD														
B-117	23 30 01SWNE	5144	51	514	2	0	0	2	2	2 E	E	E	S	F	F
B-118	23 30 01SWNW	5144	51	514	36	0	0	36	6	40 E	E	E	F	F	F
B-126	23 30 01NWNE	5144	51	514	5	5	0	10	4	11 E	E	E	S	F	F
S-014	24 30 36NE	5144	51	514	0	1	0	1	0	0					*
* 5654	TELEGRAPH CREEK - WIEDERRICK BROTHERS														
B-084	23 30 22	11520	115	1152	39	0	0	39	30	43 E	E	E	F	F	F
B-085	23 30 23	11520	115	1152	9	0	0	9	1	10 E	E	E	S	F	F
B-086	23 30 24/25	11520	115	1152	199	0	0	199	43	219 M	E	S	F	F	F
B-112	23 30 21	11520	115	1152	11	0	0	11	4	12 E	E	E	S	F	F
P-063	23 31 05/06	11520	115	1152	0	0	184	184	0	0			*	*	*
* 5655	BOX ELDER - WIEDERRICK BROTHERS														
P-086	23 31 15	6488	65	649	3	0	12	15	0	0 E	E	E	F	F	F
S-013	23 31 09/16	6488	65	649	0	56	36	92	0	0				*	*

TOWN NUMBER	APPROX LOCATION TN RN SECTION		ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE DOG ACREAGE				LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E
						BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES							
* 5656	UPPER LONETREE COULEE - GENE BARNARD															
B-087	23	32 07	544	5	54	16	0	0	16	16	18	E	E	E	F	F
* 5658	NORTH FORK TELEGRAPH CREEK - RAY SHORES/LARRY OLSEN															
P-082	24	33 31	4427	44	443	0	0	15	15	0	0				*	*
P-083	23	32 02	4427	44	443	0	0	17	17	0	0				*	*
* 5660	LARB HILLS - ANDREW P. HART															
P-084	23	33 19	6178	62	618	0	0	43	43	0	0				*	*
P-085	23	33 29	6178	62	618	1	0	11	12	0	13	E	E	E	S	F
* 5661	KILLED WOMAN - GENE BARNARD															
P-042	23	32 29	2057	21	206	0	0	6	6	0	0				*	*
* 5662	FOURCHETTE CREEK - LOVING U RANCH															
B-090	22	29 22/27	20809	208	2081	29	0	0	29	13	32	E	F	F	F	F
B-111	22	29 27SENE	20809	208	2081	33	0	0	33	19	36	E	F	F	F	F
B-124	23	30 33/34	20809	208	2081	46	0	0	46	21	51	E	E	E	F	F
B-140	22	30 17	20809	208	2081	1	0	0	1	0	1	E	E	E	S	F
B-141	23	30 30	20809	208	2081	3	0	0	3	0	3	E	E	E	S	F
S-001	23	29 36	20809	208	2081	8	28	4	40	0	44	E	E	E	F	F
S-002	22	30 16/17/21	20809	208	2081	15	73	0	88	44	97	E	E	S	F	F
* 5663	FIRST COULEE - VESETH AND VESETH RANCH INC.															
B-092	23	29 34/35	4818	48	482	16	0	16	32	60	35	E	F	F	F	F
B-094	22	29 05/06/07/08	4818	48	482	359	0	91	450	516	495	E	F	F	F	F
B-095	22	29 17/20	4818	48	482	100	0	4	104	96	114	E	F	F	F	F
B-096	22	29 29/32	4818	48	482	49	0	0	49	57	54	M	F	F	F	F
P-014	23	29 33	4818	48	482	0	0	2	2	0	0					*
* 5665	KARSTEN COULEE - LOVING U RANCH															
B-088	23	28 25E	5719	57	572	246	0	18	264	189	290	E	F	F	F	F
B-089	23	29 31	5719	57	572	79	0	0	79	64	87	M	F	F	F	F
B-091	23	29 32	5719	57	572	27	0	6	33	28	36	E	F	F	F	F
B-093	22	28 01/02	5719	57	572	262	0	21	283	269	311	E	F	F	F	F
P-023	22	29 19/20	5719	57	572	23	0	133	156	165	172	E	F	F	F	F
S-007	23	28 36SW	5719	57	572	0	43	0	43	0	0		*	*	*	*
S-008	23	28 36NE	5719	57	572	2	98	6	106	95	117	E	F	F	F	F

VALLEY RESOURCE AREA

TOWN NUMBER	APPROX LOCATION TN RN SECTION		ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE DOG ACREAGE				LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E
						BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES							
* 4019	SNAKE CREEK - DON TIMM															
B-001	36	35 27SWNW	7073	71	707	115	0	0	115	0	0	M	M	M	X	M
* 4563	COYOTE CREEK - ENGSTROM/WESEN															
B-004	28	38 36SENE	6505	65	650	0	40	0	40	0	0					
* 4595	CARPENTER CREEK - PAGE/WHITHAM															
B-005	24	35 06SESE	130399	1304	13040	0	0	40	40	0	0					
B-006	24	35 26SENE	130399	1304	13040	0	0	40	40	0	0					
B-008	23	35 13SESE	130399	1304	13040	100	0	0	100	0	0	M	M	M	X	M
B-009	23	35 14SWNE	130399	1304	13040	125	0	0	125	0	0	M	M	M	X	M
B-010	23	36 07NENE	130399	1304	13040	175	0	0	175	0	0	M	M	M	X	M
B-011	23	36 17SWNW	130399	1304	13040	100	0	0	100	0	0	M	M	M	X	M

TOWN NUMBER	APPROX LOCATION TN RN SECTION		ALLOT BLM ACRES	1% BLM ACRES	10% BLM ACRES	PRAIRIE DOG ACREAGE				LOW MGMT LEVEL	HIGH MGMT LEVEL	ALT A	ALT B	ALT C	ALT D	ALT E
						BLM ACRES	STATE ACRES	PRIVATE ACRES	TOTAL ACRES							
* 4600 B-007	CABIN COULEE - BURKE RANCH	23 35 08SENE	5669	57	567	0	0	40	40	0	0					
* 4713 B-002	LOWER CROW CREEK - JIM MATTFELDT	35 36 29NWSW	3394	34	339	30	0	0	30	0	0	E	E	E	X	M
* 4726 B-003	EAGLES NEST COULEE - BLACK RANCH	33 37 23NENE	18058	181	1806	155	0	0	155	0	0	M	M	M	X	M

APPENDIX L

ACCESS TO BLM LAND

Access needs are based on these management considerations:

Resource Values - The commercial, casual use and protection of the public lands are important management issues for the Bureau. Resource values and their use or nonuse require a multiple use perspective including various access considerations. Rights-of-way corridors, forest management, recreation, wildlife, and minerals.

Public Demand - Public demand is closely tied to resource values. As the need for a resource changes, its value fluctuates accordingly. Demand is one of the key criteria in prioritizing access needs.

Size - The size of the area identified for access is an important consideration. As a rule, large areas have a priority. But, resource values such as recreation sites, may justify acquiring access to smaller areas.

Bureau Investment - Legal public access will be obtained to those BLM areas where substantial public monies have been invested in projects and where continued diverse public use is expected. For lesser investment projects and/or those to which general public use will be limited, a nonexclusive easement will be obtained.

Access needs were identified to meet management objectives for hunting, hiking, sightseeing, camping, picnicking, geological interpretation, riparian areas, crucial winter range and paleontological interpretation and excavation. The type of access pursued could be a trail, two-track, bladed road or gravel road. Access needs identified would be for a two-track.

New Legal Public Access

BLM would pursue new legal public access to these BLM parcels under Alternatives C, D and E:

Judith Resource Area

<u>Parcel Name</u>	<u>Acres</u>
Square Butte	1,760
Arrow Creek West	3,200
Arrow Creek East	10,460
Arrow Creek Northwest	4,720
Judith River West	5,540
Judith River South	660
North Moccasins	3,280
South Moccasins	1,200
Whiskey Ridge	4,760
East Christina	760
Fergus	2,040
Fergus Breaks	1,240
New Year Peak	920
Fox Peak	720
Levis Peak	1,360
Lookout Peak	560
Black Butte	3,080
Blacktail	320
Little Snowy Mountains	3,360
Antelope Common	2,680
Cottonwood Crossing	1,040
Hay Coulee	4,280
Three Buttes	6,880
Cat Creek	<u>2,920</u>
Subtotal	67,740

Valley Resource Area

<u>Parcel Name</u>	<u>Acres</u>
Mouth of the Milk River	13

Phillips Resource Area

<u>Parcel Name</u>	<u>Acres</u>
Big Bend Allotment	1,080
Henry Smith Cultural Site	2,480
Little Warm Spring Creek	320
Kid Curry	160
Subtotal	4,040

A total of 71,793 BLM acres were identified as needing new legal access.

Additional Legal Public Access

BLM would pursue additional legal public access to these BLM parcels under Alternatives D and E:

Judith Resource Area

<u>Parcel Name</u>	<u>Acres</u>
Arrow Creek Southwest	1,600
Arrow Creek Southeast	8,800
Judith River East	6,220
Dog Creek South WSA	3,760
Dog Creek	3,160
Blind Canyon	5,120
Woodhawk WSA	14,060
Sourdough Creek West	840
Sourdough Creek	10,420
Fargo Coulee	10,320
Armells Creek	15,160
South Armells Creek	4,200
Pyramid Peak	7,760
Chicago Gulch	2,880
Fords Creek	3,840
East Indian Butte	7,120
Carroll Crossing	2,240
Buffalo Wallow	6,840
Chimney Crossing	12,000
Horse Camp Crossing	19,040
Chain Buttes	10,900
Drag Creek	4,840
Box Elder	3,400
Payola Reservoir	2,160
Teigen Hills	3,360
Elk Creek South	5,280
Pike Creek	13,260
Flatwillow South	4,160
Evans Bend	2,560
Chimney Bend	3,200
Armells Headwaters	2,180
Blood Creek Breaks	27,960
Gorman Coulee	2,620
Subtotal	231,260

Valley Resource Area

<u>Parcel Name</u>	<u>Acres</u>
Rock Creek	10,640
Hose Reservoir	800
Gay Reservoir	640
Burnt Lodge	15,120
Broken Bow	15,000
Harpers Ridge	15,880
Duck Creek	9,300
Upper Eighth	2,640
Middle Eighth	840
Seventh Ridge	<u>2,000</u>
Subtotal	72,860

Phillips Resource Area

<u>Parcel Name</u>	<u>Acres</u>
Frenchman Creek	63,045
North Phillips	305,280
Saco Hills	32,000
Southeast Phillips	178,560
Burnt Lodge WSA	13,730
Phillips Breaks	182,400
Little Rocky Mountains	27,883
White Rock Coulee	<u>19,840</u>
Subtotal	822,738

A total of 1,126,858 BLM acres were identified as needing additional legal public access.

APPENDIX M

GRAZING MANAGEMENT

This Appendix shows the allotments within the Judith, Valley and Phillips Resource Areas. The following table explains the abbreviations used for the appendix.

Allot Number = Allotment Number
 Lyst Kind = Livestock Kind: C = Cattle, H = Horse, S = Sheep
 Mgt Cat = Management Category: M = Maintain, I = Improve, C = Custodial
 Graz Alloc = Grazing Allocation: Y = Yes, N = No
 Plan Type = E = Existing AMP, P = Proposed AMP, PT = Potential AMP, N = Non-AMP
 Graz Method = Grazing Method: RR = Rest Rotation, DR = Deferred Rotation, D = Deferred, S = Seasonal
 Exel = Excellent
 Unsuit = Unsuitable
 Trend = U = Upward, D = Downward, S = Static

Allotment Name	Allot Number	Lst Mgt Kind	Graz. Alloc	Plan Type	Grazing Season	Graz. Method	JUDITH RESOURCE AREA				Other Acres	Ecological Status/Condition				Trend	
							Public AUMs	Other AUMs	Public Acres	Other Acres		Excel.	Good	Fair	Poor		Unsuit
20016	WOLF CREEK COMMON	C	M	Y	P	0501	1031	1259	0	6560	0	0	15188	1340	0	0	S
02000	FINK EX-OF-USE IND.	C	M	Y	PT	0601	0715	0	43	320	0	320	0	0	0	0	S
02001	EAST INDIAN BUTTE CO	C	I	Y	P	0416	1115	3669	0	24300	0	2430	21870	0	0	0	S
02041	GEORGE KOMAREK IND.	C	C	Y	M	0301	0228	515	0	2931	0	0	2931	0	0	0	S
02003	CIMRAKL IND.	C	C	Y	N	0301	0228	270	0	1642	0	0	1642	0	0	0	S
02004	GILSKEY IND.	C	M	Y	E	0516	1031	309	0	1561	0	0	1290	271	0	0	S
02005	FERGUS TRIANGLE IND.	C	M	Y	E	0516	0915	378	0	2130	0	0	820	1310	0	0	S
02006	ARNELOPE COULEE COMM	C	M	Y	P	0501	1130	551	0	3203	0	0	975	2228	0	0	S
02007	ARMELLS IND.	C	M	Y	P	0501	1015	568	0	3091	0	0	0	3091	0	0	S
02008	RINDAL/INDIAN BUTTE	C	C	Y	N	0301	0228	15	0	78	0	0	78	0	0	0	S
02010	JACKSON IND.	C	C	Y	N	0401	1130	56	0	160	0	0	160	0	0	0	S
02011	MACHLER IND.	C	C	Y	N	0401	1130	10	0	40	0	0	40	0	0	0	S
02012	JORDON INDIVIDUAL	C	C	Y	N	0301	0228	395	0	2021	0	0	2021	0	0	0	S
02013	WEST INDIAN BUTTE CO	C	I	Y	P	0416	1115	1575	0	11490	0	0	10341	1149	0	0	S
02015	J. KOMAREK IND.	C	C	Y	N	0301	0228	19	0	125	0	0	125	0	0	0	S
02016	D. KOMAREK HOME IND.	C	C	Y	PT	0301	0228	102	0	519	0	0	519	0	0	0	S
02017	MATHISON IND.	C	C	Y	N	0301	0228	60	0	335	0	0	335	0	0	0	S
02018	MAYBERRY IND.	C	M	Y	P	0301	0228	393	0	2933	0	0	2933	0	0	0	S
02019	SIRKY IND.	C	C	Y	N	0401	1130	71	0	360	0	0	360	0	0	0	S
02020	D&G RINDAL COMMON	C	C	Y	N	0601	0915	285	0	1373	0	0	1373	0	0	0	S
02021	LOWER ARMELLS	C	M	Y	P	1115	0415	260	0	2631	0	0	2631	0	0	0	S
02024	BOURGEOIS IND.	C	M	Y	P	0501	1031	567	0	3881	0	0	3881	0	0	0	U
02025	DRY ARMELLS PETRANEK	C	M	Y	P	0615	0115	720	0	4379	0	0	4379	0	0	0	S
02028	HANSON FLAT/MAULAND	C	C	Y	N	0501	1015	186	0	1175	0	0	1175	0	0	0	S
02031	WILLIS PLACE IND.	C	C	Y	N	0515	0715	383	0	1823	0	0	1823	0	0	0	S
02032	SATTERFIELD IND.	C	C	Y	N	0516	0931	477	0	1200	0	0	1200	0	0	0	S
02033	TAYLOR IND.	C	C	Y	N	0301	0228	5	0	40	0	0	40	0	0	0	S
02034	WILLMORE IND.	C	C	Y	N	0301	0228	202	0	200	0	0	200	0	0	0	S
02500	LUND # RANCH IND.	C	M	Y	P	0501	1031	653	0	1846	0	0	646	1200	0	0	S
02503	BUSENBARK IND.	C	M	Y	E	0510	1031	432	0	2883	0	0	2883	0	0	0	S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc	Plan Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
						From To						Excel.	Good	Fair	Poor	Unsuit
02505	HAY COULEE	C	M	Y	E	0516 1015	DR	817	0	3654	0	0	3216	438	0	0 S
02506	NORTH CROOKED IND.	C	M	Y	P	0501 1031	S	1865	0	7198	0	0	7198	0	0	0 S
02510	ANTELOPE STYER/SPIRO	C	M	Y	E	0515 1031	S	539	0	2126	0	0	680	1446	0	0 S
02511	WEAVER IND.	C	C	Y	N	0301 0228	S	159	0	575	0	0	575	0	0	0 S
02512	SLUGGETT IND.	C	C	Y	N	0301 0228	S	211	0	875	0	0	875	0	0	0 S
02514	PITMAN IND.	C	C	Y	N	0301 0228	S	238	0	960	0	0	960	0	0	0 S
02516	STYER IND.	C	C	Y	N	0301 0228	S	56	0	200	0	0	200	0	0	0 S
02517	WOODCOCK COULEE	C	C	Y	N	0501 1030	S	112	0	918	0	0	918	0	0	0 S
02599	BUTTON BUTTE IND.	C	M	Y	P	0501 1031	S	330	0	1670	0	1670	0	0	0	0 S
05099	OLSEN/HAGADOM IND.	C	M	Y	E	0601 0930	DR	284	0	2188	0	0	2188	0	0	0 S
10004	H. ARTHUR INDIVIDUAL	C	C	Y	N	0301 0228	S	62	0	240	0	0	240	0	0	0 S
10009	WHISKEY RIDGE	C	M	Y	E	0515 0915	DR	407	0	2734	0	0	1500	1234	0	0 S
10027	JUDITH RIVER IND.	C	C	Y	N	0915 1130	DR	279	0	2226	0	0	2226	0	0	0 S
10036	NORTH MOCCASIN IND.	C	C	Y	P	0701 0831	S	72	0	641	0	0	641	0	0	0 S
10038	E. BUTCHER IND.	C	C	Y	N	0601 1130	S	12	0	120	0	0	120	0	0	0 S
10041	HEGGEN INDIVIDUAL	C	C	Y	N	0501 1201	S	169	0	2760	0	0	2760	0	0	0 S
10042	JUDITH MNT. COMMON	C	C	Y	N	0601 1031	S	55	0	896	0	0	896	0	0	0 S
10043	SNYDER INDIVIDUAL	C	C	Y	N	0301 0228	S	9	0	40	0	0	40	0	0	0 S
10053	LIPKE IND.	C	C	Y	N	0301 0228	S	54	0	480	0	0	480	0	0	0 S
10058	SPEAR T. IND/COMMON	C	C	Y	N	0620 0930	S	48	0	698	0	0	698	0	0	0 S
10060	MILBURN IND.	C	C	Y	N	0401 1130	S	44	0	549	0	0	549	0	0	0 S
10062	NELSON BROS. IND.	C	C	Y	N	0701 1030	S	8	0	40	0	0	40	0	0	0 S
10073	WISKEY GULCH IND.	C	M	Y	P	0616 1015	S	103	0	2461	0	0	1394	785	282	0 S
10085	MEES CABIN TRAIL IND	C	M	Y	E	0520 0815	DR	288	0	1339	0	80	1259	0	0	0 U
10086	UELHOVEN IND.	C	C	Y	N	0401 1130	S	14	0	80	0	0	80	0	0	0 S
10092	WICKENS IND.	C	C	Y	N	0301 0228	S	5	0	33	0	0	33	0	0	0 S
10096	CARMICHAEL IND.	C	C	Y	N	0301 0228	S	66	0	289	0	0	289	0	0	0 S
15096	KNOX RIDGE RD. IND.	C	I	Y	P	0515 1215	S	1619	0	11270	0	0	2735	8535	0	0 D
15097	SMITH IND.	C	C	Y	N	0301 0228	S	249	0	960	0	0	960	0	0	0 S
15101	ANTELOPE IND.	C	M	Y	P	0501 1031	S	1086	0	4378	0	0	3502	876	0	0 S
15122	P/N INDIVIDUAL	C	M	Y	E	0501 1031	DR	1862	0	13917	0	0	13917	0	0	0 S
15128	WEST CROOKED CK.	C	M	Y	E	0516 1031	DR	502	0	2159	0	0	1975	184	0	0 S
20001	ALDRICH INDIVIDUAL	C	C	Y	N	0301 0228	S	12	0	40	0	0	40	0	0	0 S
20002	ALLEN INDIVIDUAL	C	C	Y	N	0301 0228	S	12	0	60	0	0	60	0	0	0 S
20005	MORGAN IND.	C	C	Y	N	0301 0228	S	65	0	420	0	0	420	0	0	0 S
20007	BENES INDIVIDUAL	C	C	Y	N	0301 0228	S	12	0	40	0	0	40	0	0	0 S
20008	W. BENES INDIVIDUAL	C	C	Y	N	0415 1130	S	88	0	320	0	0	320	0	0	0 S
20010	BLIND CANYON	C	M	Y	E	0301 1031	DR	382	0	4057	0	1058	100	2899	0	0 S
20011	BERGUM INDIVIDUAL	C	M	Y	N	0601 0915	S	51	0	170	0	0	170	0	0	0 S
20012	WALLING INDIVIDUAL	C	C	Y	N	0301 0228	S	10	0	40	0	0	40	0	0	0 S
20013	SMITH/BOLSTAD COMMON	C	C	Y	N	0516 0915	S	81	0	720	0	0	720	0	0	0 S
20013	ECONOM EX-OF-USE	C	C	Y	N	0616 0815	S	0	0	0	0	0	0	0	0	0 S
20014	BROWN COULEE	C	M	Y	P	0501 1031	S	455	0	6439	0	0	5239	1200	0	0 S
20017	HOLLIDAY INDIVIDUAL	C	C	Y	N	0515 1031	S	132	0	760	0	0	760	0	0	0 S
20018	TUSS INDIVIDUAL	C	C	Y	N	0301 0228	S	96	0	320	0	0	320	0	0	0 S
20019	BUTCHER INDIVIDUAL	C	M	Y	P	0301 0228	S	384	0	2900	0	0	2790	110	0	0 S
20002	HARRISON IND.	C	C	Y	N	0501 1015	S	0	94	0	564	0	0	0	0	0 S
20022	CARR INDIVIDUAL	C	C	Y	N	0301 0228	S	12	0	160	0	0	160	0	0	0 S
20024	CARTER INDIVIDUAL	C	C	Y	N	0301 0228	S	14	0	80	0	0	80	0	0	0 S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc Type	Plan	Grazing Season		Graz. Method	Graz. AUMs	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
						From	To							Excel.	Good	Fair	Poor	
20026	DEMARS	C	M	Y	E	0601	1115	DR	4645	0	362	0	0	4645	0	0	0	S
20028	DONISTHROPE INDIVIDU	C	C	Y	N	0401	1130	S	195	0	560	0	0	560	0	0	0	S
20029	EAGLE INDIVIDUAL	C	C	Y	N	0301	0228	S	44	0	200	0	0	200	0	0	0	S
20030	LEONARD INDIVIDUAL	C	M	Y	E	0616	0903	DR	146	0	820	0	0	820	0	0	0	S
20031	WOODHAWK INDIVIDUAL	C	I	Y	E	0501	1031	DR	3192	0	34687	0	12960	10819	10908	0	0	S
20032	FOWLER INDIVIDUAL	C	C	Y	N	0401	1130	S	24	0	241	0	0	241	0	0	0	S
20033	DOG CK INDIVIDUAL	C	M	Y	E	0515	1021	DR	196	0	1788	0	0	1788	0	0	0	S
20034	GREEN/ROYCE IND.	C	C	Y	N	0301	0228	S	73	0	440	0	0	440	0	0	0	S
20035	THREE BAR IND.	C	C	Y	N	0615	1215	S	24	0	440	0	0	440	0	0	0	S
20037	ARMELLS INDIVIDUAL	C	M	Y	P	0515	1015	S	568	0	3091	0	0	0	3091	0	0	S
20039	ARROW CK IND.	C	M	Y	P	1101	0228	S	398	0	3718	0	0	2928	790	0	0	S
20040	MUTTON COULEE IND.	C	C	Y	PT	0616	0930	S	179	0	880	0	0	880	0	0	0	S
20045	MATTUSCHEK IND.	C	M	Y	E	0601	1031	DR	848	0	6879	0	0	6879	0	0	0	U
20046	KNOX RIVER IND.	C	M	Y	E	0510	1031	DR	534	0	6627	0	0	5632	95	0	0	U
20047	BUTLER IND.	C	C	Y	N	0301	0228	S	8	0	40	0	0	40	0	0	0	S
20049	SIMMONS IND.	C	C	Y	N	0601	1031	S	5	0	40	0	0	40	0	0	0	S
20050	SCHIFLER IND.	C	C	Y	N	0301	0228	S	102	0	438	0	0	438	0	0	0	S
20051	JUDITH RIVER IND.	C	M	Y	P	0301	0228	S	205	0	1417	0	0	1417	0	0	0	S
20052	LINSE IND.	C	C	Y	N	0301	0228	S	89	0	89	0	0	89	0	0	0	S
20054	LUTHER IND.	C	C	Y	N	0301	0228	S	36	0	400	0	0	400	0	0	0	S
20055	CUT BANK RIDGE IND.	C	C	Y	N	0415	0531	S	36	0	160	0	0	160	0	0	0	S
20056	THOMPSON IND.	C	C	Y	N	0301	0228	S	24	0	200	0	0	200	0	0	0	S
20057	MEDEL IND.	C	C	Y	N	0401	1130	S	97	0	320	0	0	320	0	0	0	S
20063	NORMAN RANCH IND.	C	C	Y	N	0301	0228	S	138	0	696	0	0	696	0	0	0	S
20064	TWO CALF NORSKOG IND	C	I	Y	E	0415	1130	DR	1603	0	11554	0	0	11554	0	0	0	U
20068	PALLET IND.	C	C	Y	N	0301	0228	S	6	0	284	0	0	284	0	0	0	S
20069	PETERS IND.	C	C	Y	N	0601	0930	S	88	0	1537	0	0	1537	0	0	0	S
20070	TWO CALF INDIVIDUAL	C	M	Y	E	0615	1030	DR	1532	0	8938	0	7424	1514	0	0	0	U
20071	REED COULEE IND.	C	M	Y	E	0501	1031	DR	577	34	3614	0	0	3234	380	0	0	S
20072	PETRAHEK IND.	C	C	Y	N	0301	0228	S	192	0	1401	0	0	1401	0	0	0	S
20074	POPNOE IND.	C	C	Y	N	0301	0228	S	44	0	200	0	0	200	0	0	0	S
20075	SPRING COULEE IND.	C	M	Y	P	0610	1020	S	358	0	1639	0	0	0	1639	0	0	S
20076	ROEHL IND.	C	C	Y	N	0601	0831	S	30	0	600	0	0	600	0	0	0	S
20077	SHAMMEL IND.	C	C	Y	N	0401	1130	S	60	0	280	0	0	280	0	0	0	S
20079	A. STULC IND.	C	C	Y	N	0301	0228	S	180	0	1113	0	0	1113	0	0	0	S
20080	STULC IND.	C	C	Y	N	0301	0228	S	48	0	160	0	0	160	0	0	0	S
20081	W. STULC IND.	C	M	Y	E	0501	1130	DR	654	0	4179	0	0	4179	0	0	0	S
20082	TADEWALD IND.	C	C	Y	N	0520	1031	S	20	0	520	0	0	520	0	0	0	S
20083	THORNTON IND.	C	C	Y	N	0501	0930	S	72	0	1513	0	0	1513	0	0	0	S
20087	UDEHOVEN/ECONOM IND	C	C	Y	N	0301	0228	S	84	0	591	0	0	591	0	0	0	S
20088	ECONOM-UDELHOVEN IND	C	C	Y	N	0301	0228	S	78	0	400	0	0	400	0	0	0	S
20089	WALLING IND.	C	C	Y	N	0401	1130	S	131	0	1118	0	0	1118	0	0	0	S
20090	SLIDE COULEE IND	C	M	Y	E	0501	1231	DR	493	0	3436	0	0	0	3436	0	0	S
20091	D. WHERLEY IND.	C	C	Y	N	0501	0925	S	185	0	680	0	0	680	0	0	0	S
20097	ARTHUR IND.	C	C	Y	N	0401	1130	S	174	0	560	0	0	560	0	0	0	S
20098	OLSEN IND.	C	C	Y	N	0401	1130	S	24	0	280	0	0	280	0	0	0	S
10023	ARTHUR INDIVIDUAL	C	C	Y	N	0401	1130	S	174	0	560	0	0	560	0	0	0	S
10023	ARTZEN INDIVIDUAL	C	M	Y	E	0508	0930	DR	215	0	720	0	0	720	0	0	0	U
20044	KINKELAAR IND.	C	C	Y	N	0301	0228	S	103	0	440	0	0	440	0	0	0	S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc	Plan Type	Grazing Season		Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition			Trend		
						From	To						Excel.	Good	Fair		Poor	Unsuit
02600	D. ABBOTT IND.	C	C	Y	N	0616	0915	S	19	0	708	0	0	354	354	0	0	S
12601	FORDS CREEK IND.	C	M	Y	E	0401	0515	DR	211	0	1120	0	0	0	1120	0	0	U
12602	BLACKMORE IND.	C	C	Y	N	0301	0228	S	61	0	256	0	0	256	0	0	0	S
02603	CATER IND.	C	C	Y	N	0701	0915	S	48	0	963	0	0	963	0	0	0	S
12604	CHARBONNEAU IND.	C	C	Y	N	0301	0228	S	79	0	320	0	0	320	0	0	0	S
02605	SEILSTAD IND.	C	C	Y	N	0501	1131	S	61	0	320	0	0	320	0	0	0	S
02606	D. COX IND.	C	C	Y	N	0301	0228	S	248	0	1520	0	0	1520	0	0	0	S
12607	B. COX IND.	C	C	Y	N	0301	0228	S	167	0	642	0	0	642	0	0	0	S
02682	DESCHEEMAEKER IND.	C	C	Y	N	0301	0228	S	74	0	240	0	0	240	0	0	0	S
02609	FOX IND.	C	C	Y	N	0301	0228	S	158	0	954	0	0	954	0	0	0	S
12610	CRIPPS IND.	C	C	Y	N	0601	0930	S	21	0	249	0	0	249	0	0	0	S
02611	DEGNER IND.	C	C	Y	N	0301	0228	S	559	0	2718	0	0	2718	0	0	0	S
12700	FORGY COMMON	C	M	Y	E	0516	1015	DR	373	0	1730	0	0	1730	0	0	0	S
12612	WESTPHAL IND.	C	C	Y	N	0301	0228	S	45	0	328	0	0	328	0	0	0	S
02615	D&M DUFFY IND.	C	C	Y	N	0301	0228	S	71	0	863	0	0	863	0	0	0	S
02616	LARSON IND.	C	C	Y	N	0301	0228	S	102	0	440	0	0	440	0	0	0	S
02617	R&C DUFFY IND.	C	M	Y	E	0716	0915	DR	80	0	1817	0	1817	0	0	0	0	S
02618	EICKHOFF IND.	C	M	Y	N	0301	0228	S	154	0	517	0	0	517	0	0	0	S
02619	EIKE PLACE/WAGNER	C	C	Y	N	0501	1231	S	47	0	207	0	0	207	0	0	0	S
02651	WAGNER IND.	C	C	Y	N	0301	0228	S	45	0	200	0	0	200	0	0	0	S
02620	RICHARD/STAHL IND.	C	C	Y	N	0501	0731	S	272	0	1560	0	0	1560	0	0	0	S
12608	L DESCHEEMAEKER IND.	C	C	Y	N	0301	0228	S	204	0	720	0	0	720	0	0	0	S
02622	FLEHARTY IND.	C	C	Y	N	0301	0228	S	26	0	152	0	0	152	0	0	0	S
02623	FORAN IND.	C	C	Y	N	0301	0228	S	66	0	359	0	0	359	0	0	0	S
02624	KEEFER IND.	C	C	Y	N	0301	0228	S	119	0	738	0	0	738	0	0	0	S
12625	FRENCH IND.	C	C	Y	N	0301	0228	S	60	0	160	0	0	160	0	0	0	S
02626	GRASS RANGE AMP	C	M	Y	E	0515	0915	DR	176	0	520	0	0	520	0	0	0	S
02627	GILPATRICK IND.	C	M	Y	P	0301	0228	S	49	0	1016	0	0	1016	0	0	0	S
02629	MITCHELL IND.	C	C	Y	N	0301	0228	S	1	0	40	0	0	40	0	0	0	S
02631	HALA IND.	C	C	Y	N	0301	0228	S	106	0	413	0	0	413	0	0	0	S
02633	HEIL IND.	C	C	Y	N	0301	0228	S	258	0	0	0	0	258	0	0	0	S
02634	REDDING IND.	C	C	Y	N	0301	0228	S	61	0	220	0	0	220	0	0	0	S
02632	VLASTELIC.	C	C	Y	N	0301	0228	S	53	0	200	0	0	200	0	0	0	S
02635	HOLZER IND.	C	C	Y	N	0301	0228	S	182	0	760	0	0	760	0	0	0	S
02636	HORYNA IND.	C	C	Y	N	0301	0228	S	194	0	705	0	0	705	0	0	0	S
02637	GRIMSUD IND.	C	C	Y	N	0301	0228	S	31	0	160	0	0	160	0	0	0	S
02638	KALAL IND.	C	C	Y	N	0501	1031	S	56	0	240	0	0	240	0	0	0	S
02639	AGRA IND.	C	C	Y	N	0301	0228	S	196	0	921	0	0	921	0	0	0	S
02640	KOCH IND.	C	C	Y	N	0301	0228	S	10	0	120	0	0	120	0	0	0	S
02641	KALINA IND.	C	C	Y	N	0301	0228	S	49	0	160	0	0	160	0	0	0	S
02642	LEWIS BROS. IND.	C	C	Y	N	0301	0228	S	270	0	1566	0	0	1566	0	0	0	S
02643	LINDQUIST IND.	C	C	Y	N	0301	0228	S	86	0	269	0	0	269	0	0	0	S
02644	THREE LINKS IND.	C	C	Y	N	0401	1115	S	193	0	872	0	0	872	0	0	0	S
02645	MACK IND.	C	C	Y	N	0301	0228	S	66	0	320	0	0	320	0	0	0	S
02646	MARUSKA IND.	C	C	Y	N	0601	1015	S	194	0	957	0	0	957	0	0	0	S
02647	MATOVICH IND.	C	C	Y	N	0301	0228	S	246	0	1162	0	0	1162	0	0	0	S
02648	MELTON IND.	C	C	Y	N	0301	0228	S	41	0	240	0	0	240	0	0	0	S
02649	RIFE IND.	C	C	Y	N	0601	0831	S	138	0	702	0	0	702	0	0	0	S
02652	MONCUR IND.	C	C	Y	N	0601	1201	S	6	0	40	0	0	40	0	0	0	S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc	Plan Type	Grazing Season		Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition			Trend	
						From	To						Excel.	Good	Fair		Poor
02653	MUNSON IND.	C	C	Y	N	0301	0228	S	91	0	372	0	0	372	0	0	S
02654	MURPHY IND.	C	C	Y	N	0501	1115	S	18	0	160	0	0	160	0	0	S
02655	MYERS IND.	C	C	Y	N	0301	0228	S	26	0	94	0	0	94	0	0	S
02656	NIEMI IND.	C	C	Y	N	0301	0228	S	81	0	360	0	0	360	0	0	S
02657	NOBLE IND.	C	C	Y	N	0301	0228	S	187	0	554	0	0	554	0	0	S
02659	PETERS IND.	C	C	Y	N	0301	0228	S	104	0	380	0	0	380	0	0	S
02660	PETERSON IND.	C	C	Y	N	0301	0228	S	4	0	40	0	0	40	0	0	S
02662	O-N RANCH IND.	C	C	Y	N	0301	0228	S	57	0	307	0	0	307	0	0	S
02663	RICHARDS IND.	C	C	Y	N	0301	0228	S	102	0	412	0	0	412	0	0	S
02664	RYAN IND.	C	C	Y	N	0301	0228	S	53	0	361	0	0	361	0	0	S
02665	ADAMS IND.	C	C	Y	N	0301	0228	S	61	0	160	0	0	160	0	0	S
02666	SCHULZ IND.	C	C	Y	N	0301	0228	S	164	0	701	0	0	701	0	0	S
02667	SHELTERNOOK RANCH	C	C	Y	N	0301	0228	S	51	0	1080	0	0	1080	0	0	S
02668	F. SIROKY IND.	C	C	Y	N	0301	0228	S	43	0	159	0	0	159	0	0	S
02669	R. SIROKY IND.	C	C	Y	N	0601	1031	S	36	0	160	0	0	160	0	0	S
02670	T. AND D. SIROKY IND	C	C	Y	N	0301	0228	S	124	0	640	0	0	640	0	0	S
02671	R. SMITH IND.	C	C	Y	N	0301	0228	S	87	0	329	0	0	329	0	0	S
02672	STANLEY IND.	C	C	Y	N	0301	0228	S	251	0	1020	0	0	1020	0	0	S
02673	STARK IND.	C	C	Y	N	0301	0228	S	39	0	160	0	0	160	0	0	S
02674	BOX ELDER IND.	C	C	Y	N	0501	1130	S	57	0	910	0	0	910	0	0	S
02675	TEIGEN IND.	C	C	Y	N	0301	0228	S	130	0	600	0	0	600	0	0	S
02678	A. ZAHN IND.	C	C	Y	N	0301	0228	S	8	0	40	0	0	40	0	0	S
02679	MOULTON PLACE IND.	C	C	Y	N	0301	0228	S	86	0	320	0	0	320	0	0	S
02680	FIRST CONT. CORP.	C	C	Y	N	0301	0228	S	156	0	880	0	0	880	0	0	S
02681	POETTER IND.	C	C	Y	N	0616	0915	S	10	0	836	0	0	836	0	0	S
02699	FINKBEINER EX/USE	C	C	Y	N	0301	0228	S	0	36	120	0	0	120	0	0	S
02802	AHLGREN IND.	C	C	Y	N	0301	0228	S	175	0	520	0	0	520	0	0	S
02803	BOYCE INC. IND.	C	C	Y	N	0301	0228	S	46	0	240	0	0	240	0	0	S
12804	DEGNER IND.	C	C	Y	N	0301	0228	S	16	0	40	0	0	40	0	0	S
12806	BALD BUTTE AMP	C	M	Y	E	0601	1015	DR	272	0	2163	0	0	1250	913	0	S
02807	EISELEIN IND.	C	C	Y	N	0301	0228	S	144	0	887	0	0	887	0	0	S
02808	ERICKSON IND.	C	C	Y	N	0301	0228	S	20	0	39	0	0	39	0	0	S
02809	FINKBEINER IND.	C	C	Y	N	0301	0228	S	163	0	480	0	0	480	0	0	S
02810	L. FINKBEINER IND.	C	C	Y	N	0301	0228	S	26	0	86	0	0	86	0	0	S
02811	D. FLEHARTY IND.	C	C	Y	N	0301	0228	S	12	0	40	0	0	40	0	0	S
02812	YBP-HEDMAN IND.	C	C	Y	N	0301	0228	S	57	0	720	0	0	720	0	0	S
02813	HUGHES IND.	C	C	Y	N	0301	0228	S	225	0	1238	0	0	1238	0	0	S
02814	ISAACS IND.	C	C	Y	N	0301	0228	S	70	0	280	0	0	280	0	0	S
02816	KLAKKEN IND.	C	C	Y	N	0301	0228	S	83	0	320	0	0	320	0	0	S
02817	LANKUTIS IND.	C	C	Y	N	0301	0228	S	73	0	240	0	0	240	0	0	S
02818	LEHFELDT IND.	C	C	Y	N	0301	0228	S	27	0	320	0	0	320	0	0	S
02819	LEWIS BROS. IND.	C	C	Y	N	0301	0228	S	9	0	280	0	0	280	0	0	S
02820	K. LEWIS IND.	C	C	Y	N	0301	0228	S	38	0	520	0	0	520	0	0	S
02821	N BAR N IND.	C	C	Y	N	0301	0228	S	586	0	2715	0	0	2715	0	0	S
02827	HALF MOON RANCH IND.	C	C	Y	N	0301	0228	S	91	0	1120	0	0	1120	0	0	S
02823	D. SMITH IND.	C	C	Y	N	0301	0228	S	75	0	240	0	0	240	0	0	S
02824	BENDER CREEK IND.	C	C	Y	N	0301	0228	S	27	0	125	0	0	125	0	0	S
02825	PHILPS IND.	C	C	Y	N	0301	0228	S	92	0	400	0	0	400	0	0	S
02826	PRONGHORN RANCH IND.	C	C	Y	N	0301	0228	S	145	0	1135	0	0	1135	0	0	S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Plan Alloc Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
											Excel.	Good	Fair	Poor	Unsuit
					From	To									
02829	G. SCHULZ IND.	C	C	Y N	0301	0228	31	0	280	0	0	280	0	0	0 S
02830	J. SCHULTZ IND.	C	C	Y N	0301	0228	206	0	720	0	0	720	0	0	0 S
02831	STANLEY BROS. IND.	C	C	Y N	0301	0228	46	0	160	0	0	160	0	0	0 S
04824	BENSON IND.	C	M	Y P	0516	1031	401	0	2378	0	0	1500	878	0	0 S
04827	FRASER LAND & LIVE	C	C	Y N	0389	0290	192	0	1336	0	0	998	338	0	0 S
04830	ROWTON IND.	C	C	Y N	0301	0228	59	0	354	0	0	354	0	0	0 S
04831	SHAW IND.	C	C	Y N	0301	0228	15	0	80	0	0	80	0	0	0 S
04838	DOBSON/VONTVER IND.	C	C	Y N	0501	1031	156	0	794	0	0	794	0	0	0 S
04839	DUTTON IND.	C	M	Y E	0501	1130	596	0	3941	0	0	3100	841	0	0 S
15130	KOENIG IND.	C	M	Y P	0501	1031	328	0	1331	0	0	1331	0	0	0 S
04841	HANSON PLACE IND.	C	M	Y P	0501	1031	1553	0	10150	0	0	6820	3330	0	0 S
04842	MANUEL IND.	C	M	Y P	0501	1231	403	0	1581	0	0	1200	381	0	0 S
04843	MESERVE IND.	C	M	Y P	0415	1215	520	0	2348	0	0	2120	248	0	0 S
04844	CAT CREEK AMP	C	M	Y E	0501	1031	476	0	3164	0	0	2760	404	0	0 S
04851	SHAW IND.	C	C	Y N	0301	0228	57	0	295	0	0	295	0	0	0 S
04852	SOLF BROTHERS	C	M	Y E	0601	1031	684	0	3457	0	0	2980	477	0	0 S
04853	MANUEL RANCH INC.	C	C	Y N	0515	1031	12	0	52	0	0	52	0	0	0 S
04854	BOX ELDER L & L IND.	C	C	Y N	0301	0228	219	0	680	0	0	680	0	0	0 S
15040	BARTLETT IND.	C	M	Y E	0506	1031	354	0	1901	0	0	1600	301	0	0 S
15043	BASSETT IND.	C	M	Y P	0415	1130	963	0	4280	0	0	4280	0	0	0 S
04858	BOHN RANCH IND.	C	M	Y N	0515	0930	1121	0	5003	0	0	4600	403	0	0 S
15064	SHEEP WAGON ALLOT.	C	M	Y E	0501	1130	854	0	2944	0	0	2944	0	0	0 S
05057	GARDNER IND.	C	M	Y P	0505	1231	1402	0	6330	0	0	5000	1330	0	0 S
15023	FCC IND.	C	C	Y N	0301	0228	1071	0	4825	0	0	4825	0	0	0 S
04849	FCC IND.	C	M	Y P	0501	1231	4858	0	36223	0	5620	21098	8660	845	0 S
15147	BARNEY PLACE	C	M	Y E	0601	0922	481	0	2651	0	0	1980	671	0	0 S
15059	BIG SKY ALLOT.	C	M	Y E	0505	1130	2568	0	10103	0	0	9013	1090	0	0 S
04865	DOMAN IND.	C	I	Y E	0601	1115	404	0	1377	0	0	960	417	0	0 S
15063	EAGER RANCH	C	M	Y P	0501	1031	979	0	3720	0	0	2110	610	0	0 S
15066	EIKE IND.	C	M	Y P	0515	1118	304	0	2409	0	0	1998	511	0	0 S
04868	FLEHARTY IND.	C	C	Y N	0301	0228	210	0	812	0	0	812	0	0	0 S
04869	FRASER IND.	C	C	Y N	0301	0228	205	0	1050	0	0	510	510	0	0 S
04870	LOWER BLOOD CREEK	C	M	Y E	0501	1231	892	0	7826	0	6901	925	0	0	0 S
04871	GRSHMEL IND.	C	C	Y N	0301	0228	24	0	120	0	0	120	0	0	0 S
15069	HALE RANCH IND.	C	C	Y N	0501	1231	1037	0	4355	0	0	3786	569	0	0 S
15153	EV BRADY IND.	C	M	Y E	0516	1115	324	0	1490	0	0	984	506	0	0 S
04874	DOUG DELANEY IND.	C	C	Y N	0301	0228	459	0	1830	0	0	1490	348	0	0 S
15072	DAVE HEDMAN IND.	C	M	Y P	0405	1115	1011	0	5250	0	0	3928	989	333	0 S
04876	HILL IND.	C	C	Y N	0301	0228	105	0	440	0	0	440	0	0	0 S
15139	JACK HUGHES IND.	C	C	Y N	0301	0228	1330	0	5985	0	0	5099	886	0	0 S
15146	NORTH FLATWILLOW	C	M	Y E	0501	1031	830	0	4870	0	0	3900	893	77	0 S
15070	SILVER SAGE RANCH	C	C	Y N	0301	0228	221	0	700	0	0	700	0	0	0 S
04480	J. IVERSON IND.	C	M	Y P	0515	0908	375	0	2570	0	0	1402	1168	0	0 S
05018	JOHNSON IND.	C	M	Y P	0505	1104	173	0	792	0	0	600	192	0	0 S
15081	C.K. CATTLE CO.	C	M	Y P	0501	1231	261	0	2797	0	232	2567	0	0	0 S
15078	KIMMEL IND.	C	M	Y E	0616	0930	607	0	2962	0	0	1922	818	222	0 S
04884	JOE KING AND SONS	C	M	Y E	0520	1206	1361	0	6792	0	286	5406	1621	279	0 U
04885	KRUGER IND.	C	C	Y N	0301	0228	39	0	228	0	0	196	32	0	0 S
04886	LEWIS BROS. IND.	C	C	Y N	0301	0228	773	0	3263	0	0	3263	0	0	0 S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc Type	Plan	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend	
												From	To	Excel.	Good		Fair
15016	MARKS IND.	C	M	Y	E	0515	1015	DR	982	0	4934	0	4126	808	0	0	S
05083	TRENT BROWNING IND.	C	M	Y	P	0501	1215	S	538	0	3432	0	3111	321	0	0	S
151085	MLEKUSH IND.	C	M	Y	N	0516	1020	S	368	0	1752	0	1549	203	0	0	S
04890	NEBRASKA	C	C	Y	N	0301	0228	S	1370	0	5022	0	5022	0	0	0	S
0404891	BENDER AMP	C	M	Y	E	0416	1031	RR	458	0	2179	0	1989	290	0	0	S
04892	PETAJA IND.	C	C	Y	N	0501	1031	S	29	0	80	0	80	0	0	0	S
0404898	REYNOLDS IND.	C	M	Y	P	0601	0831	S	289	0	1041	0	801	240	0	0	S
04894	SCHULTZ IND.	C	M	Y	P	0520	1223	S	825	0	3351	0	2989	362	0	0	S
15154	GRANTIER IND.	C	C	Y	N	0301	0228	S	132	0	440	0	440	0	0	0	S
04896	SIKVELAND IND.	C	M	Y	E	0515	0914	RR	824	0	4520	0	4120	188	0	0	S
1515089	SOLF BROTHERS IND.	C	M	Y	E	0601	1130	DR	473	0	3413	0	2920	214	0	0	S
15087	STEWART IND.	C	I	Y	E	0515	0930	DR	318	0	1318	0	912	330	76	0	S
1515048	P.M. TEIGEN IND.	C	M	Y	P	0520	0930	S	587	0	2614	0	1822	792	0	0	S
1515109	TEIGEN LAND/LIVE IND	C	M	Y	P	0520	1031	S	3318	0	13329	0	13329	0	0	0	S
0404901	PETROLIA BENCH IND.	C	C	Y	N	0301	1130	S	196	0	946	0	946	0	0	0	S
15019	BOHN IND.	C	M	Y	E	0701	1131	S	341	0	1479	0	1253	226	0	0	S
1414903	D. HALE IND.	C	C	Y	N	0301	0228	S	339	0	1857	0	1426	431	0	0	S
14904	WEAVER IND.	C	C	Y	N	0301	0228	S	98	0	400	0	400	0	0	0	S
0505017	WEINGART IND.	C	M	Y	E	0505	1020	DR	1646	0	5900	0	5120	868	0	0	S
14906	WHISONANT IND.	C	C	Y	N	0301	0228	S	14	0	80	0	80	0	0	0	S
14907	HUGHES IND.	C	M	Y	E	0416	1205	DR	593	0	2743	0	1631	1112	270	0	S
0404909	BUSENBARK IND.	C	C	Y	N	0401	1130	S	232	0	880	0	880	0	0	0	S
1414910	DELANEY IND.	C	C	Y	N	0301	0228	S	418	0	1672	0	1672	0	0	0	S
14911	PEARCE IND.	C	C	Y	N	0301	0228	S	48	0	160	0	160	0	0	0	S
1414912	M. DELANEY IND.	C	C	Y	N	0301	0228	S	97	0	440	0	440	0	0	0	S
0404873	D. IVERSON IND.	C	C	Y	N	0501	0703	S	22	0	90	0	90	0	0	0	S
0404821	BENSON IND.	C	M	Y	P	0501	1031	S	540	0	2532	0	1297	1235	0	0	S
14952	M. BUSENBARK IND.	C	C	Y	N	0301	0228	S	30	0	160	0	160	0	0	0	S
15051	SOCHA(ESTES) IND.	C	M	Y	E	0501	1231	DR	1037	0	3798	0	3621	177	0	0	S
1414969	SOCHA(JACKSON) IND.	C	M	Y	P	0501	1231	S	545	0	3785	0	3785	0	0	0	S
0404956	HEDMEN IND.	C	C	Y	N	0301	0228	S	12	0	69	0	69	0	0	0	S
15025	MUSSELHELL COMMON	C	I	Y	P	0501	1013	S	2254	0	14107	0	14107	0	0	0	S
0404957	IVERSON IND.	C	M	Y	E	0516	1115	RR	1715	0	10240	0	2857	669	146	0	S
0202515	SIKVELAND CR. CK.IND	C	C	Y	N	0301	0228	S	77	0	320	0	320	0	0	0	S
0404959	MATOVICH IND.	C	M	Y	P	0501	1231	S	959	0	8504	0	7522	982	0	0	S
0404960	MARKS IND.	C	M	Y	P	0501	1231	S	1203	0	8344	0	6901	1443	0	0	S
15027	SOCHA(MCARTHUR) IND.	C	C	Y	N	0301	0228	S	236	0	1417	0	1417	0	0	0	S
0404963	SIKVELAND IND.	C	M	Y	E	0501	1231	RR	470	0	1844	0	1844	0	0	0	S
15033	TWO CROW IND.	C	C	Y	N	0301	0228	S	579	0	4630	0	4630	0	0	0	S
15028	TWO CROW(SPEAR) IND.	C	M	Y	P	1101	0430	S	2486	0	14430	0	12121	2317	0	0	S
15031	TRESCH CHAIN BUTTES	C	M	Y	P	0501	1031	S	1181	0	6744	0	5144	1600	0	0	S
0404967	WEAVER IND.	C	M	Y	P	0516	0830	S	609	0	1721	0	1510	211	0	0	S
15013	SWINGING H. IND.	C	M	Y	P	0501	1025	S	2407	0	15125	0	8690	3860	0	0	S
14988	DAMSCHEN IND.	C	C	Y	N	0301	0228	S	536	0	2998	0	2098	900	0	0	S
04990	EIKE IND.	C	M	Y	P	0515	1118	S	133	0	822	0	613	209	0	0	S
14992	FRASER LAND/LIVE IND	C	C	Y	N	0301	0228	S	216	0	1200	0	1200	0	0	0	S
14993	54 LIVESTOCK CO.	C	C	Y	N	0501	1231	S	347	0	1120	0	1120	0	0	0	S
15001	HASSETT IND.	S	C	Y	N	0401	1130	S	140	0	752	0	752	0	0	0	S
15003	F. HILL IND.	C	C	Y	N	0301	0228	S	323	0	1440	0	1230	210	0	0	S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
											Excel.	Good	Fair	Poor	Unsuit
05005	KIEHL IND.	C	C	Y N	From 0601 To 1231	S	173	0	808	0	0	808	0	0	0 S
25007	W. KINCHELOE IND.	C	C	Y N	0301 0228	S	18	0	80	0	0	80	0	0	0 S
15009	MAXWELL IND.	S	C	Y N	0301 0228	S	252	0	1680	0	0	1680	0	0	0 U
15010	MUSSELSHELL IND.	C	C	Y N	0301 0228	S	48	0	280	0	0	280	0	0	0 S
15115	BROWNING IND.	C	M	Y E	0501 1031	DR	683	0	4766	0	0	4766	0	0	0 S
15014	WIGGINS IND.	S	C	Y N	0301 0228	S	151	0	680	0	0	680	0	0	0 S
15118	L. GOFFENA IND.	C	C	Y N	0301 0228	S	278	0	1000	0	0	1000	0	0	0 S
15119	A. GOFFENA IND.	C	C	Y N	0501 1231	S	231	0	720	0	0	720	0	0	0 S
15121	TEINI IND.	C	C	Y N	0501 1231	S	31	0	283	0	0	283	0	0	0 S
04859	J. BRADY IND.	C	C	Y N	0301 0228	S	7	0	30	0	0	30	0	0	0 S
15135	G. BRADY IND.	C	C	Y N	0301 0228	S	8	0	40	0	0	40	0	0	0 S
15137	H. STENSVAAD IND.	C	M	Y N	0301 0228	S	3	0	40	0	0	40	0	0	0 S
15151	HUGHES BROTHER IND.	C	M	Y P	0601 1101	S	840	0	3937	0	0	3621	316	0	0 S
09649	ABN RANCH INC.	C	C	Y N	0401 0101	S	66	0	237	0	0	200	67	0	0 S
09653	ABLE PLACE	C	M	Y P	0501 1201	DR	360	0	2609	0	0	2000	609	0	0 S
19655	ARNST IND.	C	C	Y N	0815 1101	S	19	0	160	0	0	160	0	0	0 S
09656	APPLEGATE IND.	C	M	Y P	0610 1120	S	366	0	5273	0	0	4200	1073	0	0 S
19807	BAILEY L. AND L. IND.	C	C	Y N	0401 1230	S	29	0	149	0	0	120	29	0	0 S
09664	BIG VIEW RANCH IND.	C	C	Y N	0301 0228	S	11	0	124	0	0	124	0	0	0 S
09665	NEBEL COULEE IND.	C	M	Y P	0601 1031	S	59	0	543	0	0	243	300	0	0 S
09666	BOEMAN IND.	C	C	Y N	0301 0228	S	48	0	240	0	0	240	0	0	0 S
09668	J. BRONEC IND.	C	C	Y N	0301 0228	S	10	0	40	0	0	40	0	0	0 S
09670	T. AND J. BRONEC IND.	C	C	Y N	0301 0228	S	37	0	120	0	0	120	0	0	0 S
19673	BURCHAK IND.	C	C	Y N	0301 0228	S	11	0	120	0	0	120	0	0	0 S
09679	CHAMBERLAIN IND.	C	C	Y N	0301 0228	S	26	0	298	0	0	298	0	0	0 S
09681	CLARK IND.	C	C	Y N	0601 1031	S	23	0	160	0	0	160	0	0	0 S
09683	COPPEDGE IND.	C	C	Y P	0301 0228	S	288	0	2591	0	0	2000	591	0	0 S
09687	DAMMEL IND.	N	C	Y N	0501 0930	S	138	0	905	0	0	905	0	0	0 S
19691	G. DEMARS IND.	C	C	Y N	0601 0815	S	39	0	670	0	0	670	0	0	0 S
09692	DIEKHANS IND.	C	C	Y N	0301 0228	S	55	0	235	0	0	235	0	0	0 S
09695	G&H DOVER IND.	C	C	Y N	0401 1130	S	17	0	119	0	0	119	0	0	0 S
09693	DOSTAL AMP	C	M	Y E	0501 1031	DR	320	0	2568	0	0	1900	668	0	0 S
09700	DUVALL BROS. IND.	C	C	Y N	0301 0228	S	123	0	515	0	0	400	115	0	0 S
09703	ELLIS IND.	C	M	Y P	0301 0228	S	157	0	1503	0	0	900	603	0	0 S
09705	ENGELLANT IND.	C	C	Y N	0301 0228	S	8	0	40	0	0	40	0	0	0 S
09706	WILDA IND.	C	C	Y N	0301 0228	S	8	0	40	0	0	40	0	0	0 S
09711	FLANAGAN IND.	C	C	Y N	0301 0228	S	48	0	121	0	0	121	0	0	0 S
09714	FULTZ IND.	C	C	Y N	0301 0228	S	172	0	800	0	0	800	374	0	0 S
09724	W. SNAPP IND.	C	M	Y P	0701 0831	S	50	0	1336	0	0	1336	0	0	0 S
09725	LOST LAKE RANCH	C	C	Y N	0501 1101	S	11	0	121	0	0	121	0	0	0 S
09662	HENDERSON IND.	C	C	Y N	0301 0228	S	97	0	800	0	0	550	250	0	0 S
09729	HICKS AND SONS INC.	C	C	Y N	0516 1115	S	104	0	820	0	0	500	320	0	0 S
19730	HARLOW IND.	C	C	Y N	0601 0831	S	64	0	200	0	0	200	0	0	0 S
19737	HUGHES LIVESTOCK CO.	C	C	Y N	0301 0228	S	16	0	80	0	0	80	0	0	0 S
09738	HUGHES AND SONS	C	C	Y N	0301 0228	S	7	0	120	0	0	120	0	0	0 S
19741	JENNI IND.	C	C	Y N	0301 0228	S	35	0	850	0	0	850	441	0	0 S
09745	KILLHAM IND.	C	C	Y N	0301 0228	S	12	0	40	0	0	40	0	0	0 S
09746	KINGSBURY IND.	C	C	Y N	0401 1130	S	31	0	125	0	0	125	40	0	0 S
09749	WINDERL IND.	C	C	Y N	0515 1020	S	16	0	160	0	0	160	0	0	0 S

Allot Number	Allotment Name	Lvst Mgt Kind	Graz. Plan Alloc Type	Grazing Season From To	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
										Excel.	Good	Fair	Poor	Unsuit
09750	KLIND IND.	C	C Y N	0601 1215	S	8	0	40	0	0	40	0	0	0 S
19824	SIX DIAMOND INC.	C	C Y N	0415 1031	S	8	0	40	0	0	40	0	0	0 S
09751	KOCHIVAR BROS. IND.	C	C Y N	0301 0228	S	8	0	80	0	0	80	0	0	0 S
09753	KOSKI IND.	C	M Y P	0301 0228	S	115	0	1929	0	0	1500	429	0	0 S
09754	KURTH IND.	C	C Y N	0616 1015	S	4	0	28	0	0	28	0	0	0 S
09755	LAABARRE IND.	C	C Y P	0515 1215	S	123	0	1236	0	836	400	0	0	0 S
09759	LEACH IND.	C	C Y N	0401 1201	S	39	0	538	0	0	400	138	0	0 S
09761	LITTLE IND.	C	C Y P	0301 0228	S	153	0	2079	0	0	1440	639	0	0 S
09763	ARNBERG IND.	C	C Y N	0301 0228	S	7	0	80	0	0	80	0	0	0 S
09764	CARTWRIGHT IND.	C	C Y N	0301 0228	S	23	0	320	0	0	200	120	0	0 S
09766	MACDONALD FARMS INC.	C	C Y N	0301 0228	S	42	0	197	0	0	147	50	0	0 S
09767	MACDONALD L. IND.	C	C Y N	0301 0228	S	66	0	253	0	0	200	53	0	0 S
09770	MANLEY IND.	C	C Y N	0301 0228	S	11	0	40	0	0	40	0	0	0 S
09775	CATTLE CORP. IND.	C	C Y N	0601 1015	S	66	0	263	0	0	220	43	0	0 S
09776	MERRIMAC CATTLE CO.	C	C Y N	0501 1031	S	59	0	400	0	0	320	80	0	0 S
09777	MITTAL IND.	C	M Y P	0301 0228	S	115	0	594	0	0	0	594	0	0 S
09778	W. MITTAL IND.	C	M Y P	0301 0228	S	263	0	2725	0	0	2200	525	0	0 S
09866	MOLINE IND.	C	C Y N	0401 1231	S	210	0	1207	0	0	800	407	0	0 S
09782	EBELING IND.	C	C Y N	0301 0228	S	49	0	514	0	0	400	114	0	0 S
09783	ARROW CREEK IND.	C	C Y P	0301 0228	S	227	0	2401	0	0	2000	401	0	0 S
09787	NEVERWEAT IND.	C	C Y N	0301 0228	S	47	0	720	0	0	600	120	0	0 S
09788	NORMAN RANCH IND.	C	C Y N	0301 0228	S	17	0	66	0	0	66	0	0	0 S
09790	OLSON IND.	C	C Y N	0301 0228	S	37	0	357	0	0	357	0	0	0 S
09826	FLAT CREEK	C	M Y E	0801 1015	S	80	0	704	0	0	550	154	0	0 S
09793	PALMER IND.	C	C Y N	0301 0228	S	20	0	400	0	0	300	100	0	0 S
09794	PERES IND.	C	C Y N	0801 1101	S	12	0	129	0	0	129	0	0	0 S
09795	PERRY IND.	C	C Y N	0301 0228	S	90	0	519	0	0	400	119	0	0 S
09796	PHILLIPS IND.	C	C Y N	0301 0228	S	8	0	33	0	0	33	0	0	0 S
09797	EVANS BEND IND.	C	M Y E	0501 0228	S	198	0	1694	0	0	1000	694	0	0 S
09798	PN IND.	C	C Y N	0301 0228	S	9	0	40	0	0	40	0	0	0 S
09799	QUNELL IND.	C	C Y N	0301 0228	S	94	0	625	0	0	400	225	0	0 S
09802	RITLAND IND.	C	C Y N	0301 0228	S	7	0	34	0	0	34	0	0	0 S
09808	JARACZESKI IND.	C	C Y P	0801 1231	S	291	0	958	0	0	800	158	0	0 S
09811	SALISBURY IND.	C	C Y N	0301 0228	S	32	0	320	0	0	200	120	0	0 S
09813	SANDMEYER IND.	C	C Y N	0515 0101	S	32	0	202	0	0	202	0	0	0 S
19814	COMBOY STEELE IND.	C	C Y P	0601 1231	S	218	0	3360	0	0	2260	1100	0	0 S
09815	SCHWITT IND.	C	C Y N	0301 0228	S	32	0	161	0	0	161	0	0	0 S
09816	VERNON IND.	C	C Y N	0501 1031	S	18	0	94	0	0	94	0	0	0 S
09817	SEILSTAD IND.	C	C Y N	0401 1228	S	11	0	80	0	0	80	0	0	0 S
09819	SKELTON IND.	C	C Y N	0301 0228	S	85	0	280	0	0	280	0	0	0 S
09825	STEVEN IND.	C	C Y N	0401 1230	S	41	0	252	0	0	180	72	0	0 S
09785	FLAT CREEK ALLOT.	C	M Y E	0301 1130	S	219	0	1752	0	0	1500	252	0	0 S
09827	STRAND IND.	C	C Y N	0301 0228	S	7	0	121	0	0	121	0	0	0 S
09828	L. STRAND IND.	C	C Y N	0601 1031	S	36	0	320	0	0	200	120	0	0 S
09829	SURPRISE CREEK	C	C Y N	0501 1025	S	39	0	160	0	0	100	60	0	0 S
09830	SWAN & PASHA IND.	C	C Y N	0301 0228	S	4	0	40	0	0	40	0	0	0 S
09831	SZARZEC IND.	C	C Y N	0515 1001	S	25	0	160	0	0	160	0	0	0 S
09833	TADEVICK IND.	C	C Y N	0301 0228	S	15	0	34	0	0	34	0	0	0 S
09834	TAYLOR IND.	C	C Y N	0301 0228	S	30	0	280	0	0	200	80	0	0 S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc Type	Plan Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
												Excel.	Good	Fair	Poor	Unsuit
19835	HOYT IND.	C	C	Y	N	0401	1130	6	0	40	0	0	40	0	0	0
19839	HOME PLACE	C	C	Y	N	0301	0228	64	0	320	0	0	320	0	0	0
19837	BREWER PLACE	C	M	Y	E	0601	0915	466	0	4740	0	0	4740	0	0	0
19841	URQUHART IND.	C	C	Y	N	0801	0228	49	0	373	0	0	300	73	0	0
19844	VAN VOAST IND.	C	C	Y	N	0601	1001	25	0	80	0	0	80	0	0	0
19845	VIDAL IND.	C	C	Y	N	0301	0228	12	0	40	0	0	40	0	0	0
19847	WALTON IND.	C	M	Y	E	0501	1231	121	0	1161	0	0	735	426	0	0
19848	SPRING CREEK COLONY	C	C	Y	N	0301	0228	54	0	200	0	0	150	50	0	0
19852	SHEPARD IND.	C	C	Y	N	0301	0228	24	0	160	0	0	120	40	0	0
19853	ROBERTSON IND.	C	C	Y	N	0301	0228	13	0	40	0	0	40	0	0	0
19854	ZANTO IND.	C	C	Y	N	0601	1231	8	0	40	0	0	40	0	0	0
19856	DUFOR IND.	C	C	Y	N	0301	0228	37	0	520	0	0	520	0	0	0
19859	W. HILL IND.	C	C	Y	N	0301	0228	16	0	80	0	0	80	0	0	0
19860	MAYO IND.	C	C	Y	N	0501	1130	7	0	95	0	0	60	35	0	0
19861	J. HILL IND.	C	C	Y	P	0301	0228	213	0	3080	0	0	2340	748	0	0
19862	BARBER IND.	C	C	Y	N	0401	1115	4	0	40	0	0	40	0	0	0
19864	AYERS IND.	C	C	Y	N	0301	0228	31	0	246	0	0	201	45	0	0

VALLEY RESOURCE AREA

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc Type	Plan Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
												Excel.	Good	Fair	Poor	Unsuit
4001	CROW CREEK	C	M	Y	E	0601	0930	370	0	2480	1614	0	912	1415	0	153
4002	UPPER BLUFF CREEK	C	M	Y	E	0501	1015	586	0	3064	1817	27	1710	1295	0	32
4003	UPPER EASTFORK CROW	C	I	Y	E	0621	0930	944	0	5588	409	0	2068	3326	0	194
4004	UPPER CROW CREEK	C	M	Y	N	0301	0228	10	0	46	0	0	46	0	0	0
4000	FLINT RESERVOIR	C	I	Y	E	0515	1015	824	0	4466	1120	62	1458	2937	0	9
4005	BLUFF CREEK	C	I	Y	P	0601	0930	330	0	1443	324	0	179	1264	0	0
4006	WESTFORK BLUFF CR.	C	M	Y	PT	0616	0910	286	0	1885	1614	0	944	941	0	0
4007	CHAMBERS CREEK	C	C	Y	N	0401	1031	7	0	52	0	0	4	48	0	0
4008	LOWER TOMATO CREEK	C	I	Y	E	0501	1016	787	0	4090	2186	0	703	3250	78	59
4009	NORTH TOMATO CREEK	C	I	Y	E	0515	0930	347	0	1511	240	0	293	1218	0	0
4010	NORTH TOMATO CREEK	C	M	Y	PT	0401	1209	574	0	2687	1357	0	1618	1069	0	0
4011	NORTH TOMATO CREEK	C	M	Y	PT	1001	1130	28	0	129	1027	0	93	35	0	1
4012	UPPER MORGAN CREEK	C	M	Y	E	0501	1226	984	0	5239	1250	55	4062	1078	0	44
4013	UPPER MORGAN CREEK	C	M	Y	PT	0716	1020	287	0	1439	27	122	841	478	0	0
4014	UPPER MORGAN CREEK	C	M	Y	E	0520	1013	647	0	3775	2363	0	1809	1941	0	25
4015	UPPER MORGAN CREEK	C	I	Y	E	0505	1031	2268	0	12427	6474	433	4966	6980	0	48
4016	UPPER MORGAN CREEK	C	M	Y	PT	0515	1015	156	0	1194	1400	0	684	497	0	13
4017	UPPER MORGAN CREEK	C	M	Y	N	0301	0228	28	0	415	0	0	415	0	0	0
4018	UPPER MORGAN CREEK	C	M	Y	N	0301	0228	254	0	1440	0	0	1350	83	0	7
4019	UPPER MORGAN CREEK	C	I	Y	E	0601	1030	981	0	7073	454	0	1465	5286	0	322
4021	UPPER MORGAN CREEK	C	M	Y	PT	0416	1115	253	0	1479	0	0	579	893	0	7
4022	UPPER MORGAN CREEK	C	M	Y	E	0501	0930	798	0	4459	1360	0	2826	1633	0	0
4023	UPPER MORGAN CREEK	C	M	Y	E	0501	0930	749	0	4909	885	0	3093	1538	0	278
4024	UPPER MORGAN CREEK	C	I	Y	E	0601	1015	1092	0	6868	2712	74	1250	4758	0	786
4025	UPPER MORGAN CREEK	C	I	Y	P	0501	1115	1896	0	9243	2329	74	3102	5872	5	190
4026	UPPER MORGAN CREEK	C	M	Y	PT	0515	1115	321	0	1520	1490	0	1058	460	0	2

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Plan Alloc Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend	
											Excel.	Good	Fair	Poor		Unsuit
4027	LOWER SNAKE CREEK	C	M	Y	N	0301	15	0	124	0	0	39	85	0	0	S
4028		C	C	Y	N	0401	44	0	200	0	0	5	195	0	0	S
4029		C	M	Y	PT	0501	165	0	800	200	0	530	270	0	0	S
4031		C	M	Y	PT	0401	150	0	803	0	0	774	29	0	0	S
4032		C	M	Y	PT	0501	651	0	3991	1440	0	2268	1688	0	35	S
4033	LITTLE SNAKE CREEK	C	M	Y	N	0301	7	0	40	0	0	40	0	0	0	S
4034		C	I	Y	N	0301	64	0	466	0	0	181	285	0	0	S
4035		C	I	Y	PT	0601	94	0	383	0	0	106	277	0	0	S
4036		C	C	Y	N	0601	7	0	40	0	0	0	40	0	0	S
4037		C	M	Y	PT	0615	117	0	562	195	0	544	18	0	0	S
4038	ANDERSON-OJUEL	C	M	Y	PT	0601	159	0	798	40	0	253	545	0	0	S
4041		C	I	Y	E	0515	2572	0	17132	8518	1078	5985	8869	0	1200	U
4042		C	M	Y	N	0301	99	0	490	0	0	473	14	0	3	S
4043		C	M	Y	N	0401	9	0	49	0	0	38	8	0	2	S
4044		C	C	Y	PT	0501	94	0	399	0	0	33	366	0	0	S
4047	UPPER WESTFORK CACHE	C	C	Y	N	0301	64	0	404	0	0	0	404	0	0	S
4049		C	M	Y	PT	0301	100	0	487	0	147	270	70	0	0	S
4051		C	M	Y	N	0301	22	0	120	0	0	109	11	0	0	S
4052		C	I	Y	PT	0501	231	0	1108	465	0	347	761	0	0	S
4053		C	I	Y	E	0625	0	0	15605	4008	0	1523	12528	0	1554	S
4054	SOUTHFORK BITTER CR.	C	I	Y	E	0415	0	0	27671	9000	211	16017	7502	0	3939	S
4056		C	M	Y	PT	0516	393	0	2375	1080	0	1859	360	151	5	S
4057		C	M	Y	N	0301	52	0	160	0	90	70	0	0	0	S
4058		C	M	Y	PT	0501	310	0	1025	0	8	737	50	228	0	S
4059		C	M	Y	E	0501	535	0	2286	1440	0	1942	344	0	0	S
4061	LOWER WEST PORCUPINE	C	M	Y	PT	0601	335	0	1276	1440	0	682	594	0	0	S
4062		C	I	Y	N	0301	208	0	1166	0	0	402	764	0	0	S
4063		C	C	Y	N	0501	23	0	120	0	0	76	44	0	0	S
4064		C	M	Y	N	0501	36	0	160	0	0	160	0	0	0	S
4065		C	M	Y	N	0301	87	0	362	0	0	15	347	0	0	S
4066	CACHE CREEK	C	M	Y	PT	0516	244	0	998	0	0	598	400	0	0	S
4067	PAPOOSE CREEK	C	M	Y	PT	0301	339	0	1823	1909	0	1473	350	0	0	S
4068		C	M	Y	PT	0616	174	0	987	0	809	0	176	0	2	S
4069		C	I	Y	E	0506	198	0	890	160	0	294	596	0	0	S
4070		C	M	Y	N	0401	112	0	481	0	0	192	289	0	0	S
4071		C	I	Y	E	0401	1459	0	10266	1270	0	1661	7447	0	1158	S
4073	UPPER CANYON CREEK	C	C	Y	N	0301	14	0	67	0	0	40	27	0	0	S
4075		C	M	Y	N	0301	76	0	440	0	0	301	139	0	0	S
4076		C	M	Y	N	0301	34	0	200	0	127	73	0	0	0	S
4077		C	M	Y	N	0301	94	0	480	0	4	414	57	0	5	S
4078		C	M	Y	E	0601	504	0	3163	185	0	2641	426	0	96	S
4079	SOUTH LIME CREEK	C	M	Y	PT	0416	456	0	2446	7	0	1722	724	0	0	S
4080		C	M	Y	PT	0401	276	0	1548	1746	0	737	799	11	1	S
4081		C	M	Y	N	0301	16	0	95	0	0	91	4	0	0	S
4082		C	M	Y	PT	0415	343	0	1754	881	0	1415	321	0	18	S
4083		C	M	Y	PT	0301	99	0	801	160	192	576	33	0	0	S
4084	LOWER LIME CREEK	C	C	Y	N	0301	26	0	162	0	0	123	37	0	2	S
4087		C	C	Y	N	0301	33	0	200	0	0	83	117	0	0	S
4088		C	I	Y	N	0301	234	0	1281	0	0	369	910	0	2	S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc	Plan Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend	
												Excel.	Good	Fair	Poor		Unsuit
4089	ALKALI COULEE	C	M	Y	PT	0520 0921	S	179	0	920	240	0	382	337	199	2	S
4090	LOWER ALKALI CREEK	C	M	Y	N	0301 0228	S	55	0	320	0	0	268	52	0	0	S
4091	LOWER BEAR CREEK	C	C	Y	PT	0510 0923	S	168	0	800	472	0	360	439	0	1	S
4092	UPPER UNGER COULEE	C	I	Y	E	0701 1101	S	411	0	2090	1772	0	534	1512	0	44	S
4096	EASTFORK CACHE CREEK	C	C	Y	N	0901 1025	S	55	0	318	0	0	0	318	0	0	S
4097		C	M	Y	PT	0301 0228	S	99	0	531	0	0	374	157	0	0	S
4098	UNGER COULEE	C	M	Y	PT	0301 0228	S	37	0	160	65	0	91	69	0	0	S
4099		C	M	Y	PT	0601 0901	S	111	0	606	160	0	368	238	0	0	S
4200	LOWER PORCUPINE CR.	C	M	Y	PT	0501 1101	S	87	0	672	0	0	319	293	0	60	S
4201	LENZ COULEE	C	M	Y	N	0601 0731	S	6	0	40	0	0	40	0	0	0	S
4202		C	M	Y	N	0301 0228	S	15	0	200	0	0	137	59	0	4	S
4205	BUTCH COULEE	C	C	Y	N	0501 0831	S	39	0	160	0	0	160	0	0	0	S
4207	LOWER MILK RIVER	C	C	Y	N	0301 0228	S	28	0	107	0	0	31	0	0	1	S
4208	WHEELER COULEE	C	M	Y	E	0501 1031	DR	73	0	320	0	75	210	0	0	5	U
4300	DRY FORK	C	M	Y	N	0501 0920	S	309	0	1492	0	0	915	577	0	0	S
4301	UPPER BUGGY CREEK	C	M	Y	E	0301 0228	RR	1565	0	9864	7119	0	5979	3558	0	327	U
4302	BEAR COULEE	C	I	Y	E	0515 1115	RR	3091	0	16207	3071	0	9447	6489	0	271	S
4303	BUGGY CREEK	C	I	Y	E	0415 1125	RR	2843	0	14124	18735	36	7833	6021	0	234	S
4304	PORCUPINE CREEK	C	M	Y	N	0301 0228	S	614	0	2727	0	0	1953	684	21	69	S
4306	LOWER SPRING CREEK	C	M	Y	N	0301 0228	S	16	0	80	0	0	80	0	0	0	S
4307		C	M	Y	N	0301 0228	S	63	0	240	0	7	219	14	0	0	S
4308	SPRING COULEE	C	M	Y	PT	0410 1031	S	631	0	4914	282	83	3961	794	0	76	S
4309	WESTFORK	C	M	Y	PT	0415 1108	S	754	0	2821	4145	0	2424	393	0	5	S
4500	MILES CROSSING COU	C	C	Y	N	0301 0228	S	7	0	40	0	40	0	0	0	0	S
4501		C	M	Y	N	0301 1201	S	72	0	360	0	0	360	0	0	0	S
4502	LOWER MILES CROSSING	C	C	Y	N	0301 0228	S	24	0	120	0	0	40	80	0	0	S
4504	SHAW COULEE	C	M	Y	N	0501 1031	S	15	0	160	0	0	127	0	0	33	S
4505		C	M	Y	N	0427 1020	S	63	0	459	0	0	268	162	0	29	S
4506	JERNIGAN COULEE	C	M	Y	N	0301 0228	S	90	0	543	0	0	274	184	0	85	S
4507	HORSE COULEE	C	C	Y	N	0401 1201	S	39	0	338	0	3	56	257	0	22	S
4508	LITTLE HORN COULEE	C	M	Y	N	0301 0228	S	64	0	601	0	0	267	318	0	16	S
4509	TANK COULEE	C	M	Y	N	0401 1031	S	231	0	1564	0	0	1110	454	0	0	S
4510	BIG COULEE	C	M	Y	PT	0501 1031	S	107	0	800	0	0	276	503	0	21	S
4511	KENT COULEE	C	M	Y	PT	0301 0228	S	54	0	508	0	0	508	0	0	0	S
4513	RATTLESNAKE COULEE	C	M	Y	PT	0415 1015	S	199	0	976	11	0	976	0	0	0	S
4514	WESTFORK ASH COULEE	C	M	Y	PT	0501 1031	S	463	0	2160	650	0	2075	85	0	0	S
4515		C	M	Y	PT	0621 0712	S	76	0	320	0	109	157	163	0	0	S
4517	ASH COULEE	C	M	Y	N	0301 0228	S	116	0	640	0	0	531	0	0	0	S
4518	LARB CREEK	C	I	Y	PT	0301 0228	S	172	0	750	0	0	304	446	0	0	S
4519	MCGREGOR COULEE	C	I	Y	E	0301 1030	DR	1712	0	7181	0	0	4380	2801	0	0	S
4520	UPPER BUFFALO COULEE	C	M	Y	N	0501 1031	S	20	0	120	0	0	115	4	0	1	S
4521	LOWER BUFFALO COULEE	C	C	Y	PT	0623 1020	S	138	0	720	0	0	24	679	0	17	S
4522	LOWER BUFFALO COULEE	C	C	Y	N	0301 0228	S	24	0	130	0	0	0	125	0	5	S
4523	UPPER HAY COULEE	C	M	Y	N	0401 0930	S	71	0	320	0	0	320	0	0	0	S
4524	LOWER SQUARE COULEE	C	C	Y	N	0301 1231	S	9	0	40	0	0	40	0	0	0	S
4526	LOWER SQUARE COULEE	C	M	Y	N	0301 0228	S	181	0	774	0	0	735	39	0	0	S
4527	SANDSTONE	C	M	Y	PT	0505 1002	S	358	0	1953	370	0	1305	648	0	0	S
4528	SQUARE COULEE	C	C	Y	N	0501 1031	S	35	0	120	0	0	10	110	0	0	S
4529		C	M	Y	PT	0501 1031	S	116	0	755	280	0	377	376	0	2	S

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												Excel.	Good	Fair	Poor	Unsuit
						From	To									
4530	LOWER COON COULEE	C	C	Y	N	0301	1031	60	0	240	0	0	20	220	0	0
4531	UPPER SQUARE COULEE	C	C	Y	N	0401	1130	20	0	80	0	0	0	80	0	0
4532		C	M	Y	N	0315	1215	36	0	160	0	0	0	160	0	0
4533	UPPER ANTELOPE CR.	C	M	Y	PT	0501	1031	456	0	1800	2279	0	640	1126	0	34
4534	NORTHFORK ANTELOPE	C	I	Y	PT	0501	1031	504	0	2640	2540	0	979	1611	0	50
4535	SOUTHFORK ANTELOPE	C	I	Y	E	0501	1031	1411	0	9338	1276	0	281	8827	0	230
4536	TRUAX COULEE	C	M	Y	N	0415	1115	405	0	2094	0	11	592	1479	0	12
4537	LOWER NORTHFORK ANTE	6	I	Y	PT	0601	1031	420	0	2280	160	0	210	2003	0	7
4538	LOWER HARDCRABBLE	6	I	Y	PT	0510	1109	229	0	1160	688	0	119	1031	0	9
4539	HARDCRABBLE CREEK	6	I	Y	PT	0701	1015	459	0	2092	1080	0	136	1923	0	33
4540	HAY COULEE	C	M	Y	PT	0301	0228	565	0	3216	2800	0	34	3112	0	70
4541	LOWER HAY COULEE	C	I	Y	PT	0501	1015	97	0	570	320	0	0	560	0	10
4542	ANTELOPE CREEK	C	I	Y	PT	0401	1115	801	0	4633	9064	23	1878	2618	0	114
4543	LOWER ANTELOPE CR.	C	C	Y	PT	0401	1231	84	0	480	0	0	0	480	0	0
4544		C	C	Y	N	0621	0718	14	0	80	0	0	3	76	0	1
4545	TAMPICO COULEE	C	M	Y	PT	0301	0228	52	0	240	0	31	209	0	0	0
4546	LOST COULEE	C	I	Y	E	0416	1022	1865	0	11186	599	0	5213	5006	0	967
4547		C	M	Y	PT	0420	0915	144	0	560	720	0	0	560	0	0
4548	BOXELDER CREEK	C	I	Y	E	0401	1015	2034	0	13312	35	0	6153	6514	0	645
4549		C	M	Y	N	0301	0228	28	0	160	0	0	135	23	0	2
4550	SOUTH SHED COULEE	C	M	Y	E	0401	1031	2289	0	14166	1593	21	10367	3417	0	361
4551	UPPER BRAZIL CREEK	C	I	Y	E	0501	1031	2808	0	26500	2560	0	5719	19745	0	1036
4552	UPPER LITTLE BEAVER	C	I	Y	E	0501	1031	1032	0	11341	680	0	7402	3210	0	729
4553	BRAZIL CREEK	C	I	Y	E	0501	1115	3503	0	26593	5269	0	9004	16938	0	651
4554	LOWER SOUTHFORK ANTE	C	I	Y	E	0508	1105	483	0	6615	240	0	2892	3522	0	199
4555	BULLOCK COULEE	C	C	Y	PT	0609	1020	299	0	2016	795	0	711	1263	0	42
4556	HAY FEVER	C	C	Y	PT	0417	0608	101	0	660	365	0	0	640	0	20
4557	SECOND BRAZIL CREEK	C	I	Y	E	0501	1030	665	0	3073	1779	0	65	2985	0	23
4558	WIENET CORRAL	C	M	Y	PT	0421	1115	111	0	568	0	0	0	568	0	0
4559		C	M	Y	PT	1016	1115	67	0	320	0	43	266	9	0	2
4560	LOWER BRAZIL CREEK	C	C	Y	PT	0501	1015	502	0	1870	1860	0	870	1000	0	0
4561	HOMESTEAD	C	M	Y	N	0320	1231	24	0	120	0	0	106	14	0	0
4562	LITTLE BRAZIL CREEK	C	M	Y	N	0301	0228	32	0	160	0	0	131	21	0	8
4563	COYOTE CREEK	C	I	Y	E	0501	1015	957	0	6505	2023	0	3959	2408	38	100
4564	ALKALI COULEE	C	M	Y	PT	0301	0228	43	0	893	790	0	82	807	0	4
4565	THEOFIEL COULEE	C	C	Y	N	0301	0228	10	0	40	0	0	0	40	0	0
4566		C	C	Y	N	0301	0228	8	0	40	0	0	0	40	0	0
4567	GRAVEL PITTS	C	M	Y	N	0415	1130	36	0	240	0	0	236	0	0	4
4569		C	C	Y	N	0310	1115	118	0	488	0	0	55	430	0	3
4570		C	C	Y	N	0301	0228	5	0	80	0	0	34	46	0	0
4571	GRANT COULEE	C	I	Y	E	0410	1130	564	0	19600	808	0	7272	11836	0	492
4572	CORRAL COULEE	C	I	Y	E	0301	0228	1314	0	8494	640	595	4417	3482	0	0
4573	LITTLE BEAVER CREEK	C	I	Y	P	0420	1019	794	0	8277	640	0	2835	5161	0	281
4574	MILLER COULEE	C	I	Y	E	0401	1031	2300	0	22415	1525	0	1889	19598	142	786
4575		C	M	Y	N	0401	1031	12	0	302	0	0	235	53	0	14
4576	LOWER WILLOW CREEK	C	M	Y	E	0601	1010	488	0	5340	1138	0	1391	3606	0	343
4577	MUD CREEK	C	I	Y	E	0620	1115	360	0	3635	640	0	1197	1331	1107	0
4578	GRANDPA COULEE	C	M	Y	E	0401	1128	396	0	1914	0	0	1639	275	0	0
4579	UPPER LARB CREEK	C	I	Y	E	0601	1031	854	0	5976	2321	219	2754	3003	0	0

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												Excel.	Good	Fair	Poor			
4581	LONE TREE CREEK	C	I	Y	E	0501	1031	RR	2772	0	40415	3635	587	19451	17845	2532	0	S
4582	LONE TREE HUB	C	C	Y	N	0501	1031	S	10	0	80	0	0	0	80	0	0	S
4583	LOWER LITTLE BEAVER	C	I	Y	E	0401	1030	RR	2322	0	22539	1714	0	11981	9327	1231	0	S
4584		C	C	Y	N	0401	1030	S	56	0	411	0	0	308	86	17	0	S
4585	LEWIS RESERVOIR	C	M	Y	E	0401	1030	RR	965	0	8974	169	0	6730	1884	360	0	S
4586	UPPER MUD CREEK	C	M	Y	N	0501	1015	S	232	0	2268	152	0	1200	577	491	0	S
4587	DUCK CREEK	C	M	Y	N	0601	1031	S	171	0	1440	0	0	1440	0	0	0	S
4588	TIMBER CREEK	C	M	Y	E	0301	0228	DR	1798	0	11797	5009	0	6739	5058	0	0	S
4589	SOUTHFORK WILLOW CR.	C	M	Y	E	0501	1004	DR	1138	0	9099	1023	282	8455	362	0	0	S
4590	WILLOW CREEK	C	M	Y	E	0401	1030	RR	4534	0	60387	7485	553	45770	11972	2092	0	S
4591	SUTHERLAND	C	C	Y	N	0501	1031	S	186	0	874	0	0	874	0	0	0	S
4592	BOMBER COULEE	C	M	Y	E	0401	1030	RR	1025	0	14321	620	0	10741	3007	573	0	S
4593	SKUNK COULEE	C	M	Y	N	0418	1126	S	265	0	2640	200	1205	1435	0	0	0	S
4595	CARPENTER CREEK	C	I	Y	E	0301	0228	DR	14180	0	130399	24671	13384	98373	18642	0	0	S
4596	MATADOR CREEK	C	M	Y	E	1026	0228	S	613	0	3162	2614	0	2696	466	0	0	S
4597		C	C	Y	N	0301	0430	S	7	0	40	0	0	40	0	0	0	S
4598	SEVEN POINT	C	M	Y	E	0501	1031	RR	2102	0	14827	4249	1534	11570	1723	0	0	S
4600	CABIN COULEE	C	M	Y	P	0301	0228	S	875	0	5669	0	5376	293	0	0	0	S
4650	ROANWOOD COULEE	C	M	Y	PT	0515	0930	S	68	0	400	0	82	212	106	0	0	S
4651	UPPER POPLAR RIVER	C	M	Y	N	0501	1030	S	30	0	160	0	0	125	33	0	2	S
4652	NO. ROANWOOD COULEE	C	M	Y	PT	0601	1015	S	54	0	320	0	0	275	45	0	0	S
4653	WEST COAL CREEK	C	C	Y	N	0301	0228	S	23	0	160	0	0	147	13	0	0	S
4654	EAST COAL CREEK	C	M	Y	PT	0501	0831	S	46	0	320	0	0	237	83	0	0	S
4655	NORTH POPLAR RIVER	C	M	Y	PT	0420	1130	S	104	0	640	0	188	348	104	0	0	S
4656	WEST ROANWOOD COULEE	C	M	Y	N	0301	0228	S	19	0	136	0	0	136	0	0	0	S
4657	ROCK CREEK DIVIDE	C	M	Y	PT	0705	1109	S	107	0	473	0	0	385	88	0	0	S
4659	SOUTH ROANWOOD COULE	C	M	Y	N	0701	0915	S	48	0	320	0	0	288	32	0	0	S
4660	SOUTH POPLAR RIVER	C	M	Y	PT	0501	0930	S	100	0	560	0	79	457	24	0	0	S
4661	POPLAR RIVER	C	M	Y	N	0601	0812	S	60	0	318	0	58	260	0	0	0	S
4662	LOWER POPLAR RIVER	C	M	Y	N	0301	1130	S	60	0	360	0	0	350	10	0	0	S
4663	UPPER MIDDLE PORCUP	C	M	Y	N	0501	1031	S	54	0	320	0	0	257	63	0	0	S
4664	UPPER SPRING CREEK	C	M	Y	PT	0601	0930	S	61	0	360	0	0	327	33	0	0	S
4665	MIDDLE FORK PORCUPIN	C	M	Y	PT	0301	0228	S	117	0	720	0	277	343	100	0	0	S
4700	UPPER MCEACHRAN	C	I	Y	E	0501	0930	RR	1006	0	5124	3327	0	2496	2598	0	30	U
4701	DAVIDSON COULEE	C	I	Y	E	0610	0930	RR	1184	0	5278	977	0	2195	3013	0	70	U
4702	MCEACHRAN CREEK	C	M	Y	N	0501	1125	S	211	0	1040	0	0	746	286	0	8	S
4703	UPPER ROCK COULEE	C	I	Y	E	0501	1115	DR	794	0	3689	890	0	1195	2494	0	0	S
4704		C	M	Y	PT	0301	0228	S	141	0	520	0	0	379	127	0	14	S
4707	EASTFORK CROW CREEK	C	I	Y	E	0410	1210	DR	2378	0	15397	6314	59	6423	8325	0	590	S
4708	ICHPAIR CREEK	C	M	Y	E	0415	1031	RR	2350	0	11497	1120	158	3755	7561	0	23	S
4709		C	M	Y	PT	0401	1215	S	155	0	671	798	90	472	109	0	0	S
4710		C	M	Y	PT	0615	0715	S	88	0	390	0	0	315	75	0	0	S
4711	NORTH WILLOW CREEK	C	I	Y	E	0520	1009	DR	1851	0	9372	1920	0	3773	5212	0	387	S
4713	LOWER CROW CREEK	C	M	Y	E	0501	1103	RR	641	0	3394	631	0	1258	2127	0	9	U
4714	ROCK CREEK	C	I	Y	PT	0301	0228	S	234	0	1220	490	0	478	742	0	0	S
4715	EAST ROCK CREEK	C	M	Y	E	0415	1115	DR	264	0	2016	1654	0	977	973	0	66	S
4716	JONES COULEE	C	M	Y	E	0401	1017	RR	739	0	3664	166	344	2591	728	0	0	S
4717	WILLOW CREEK	C	M	Y	PT	0609	1115	S	927	0	3853	2113	0	1856	1684	0	313	S
4718	UPPER WILLOW CREEK	C	I	Y	E	0515	1017	RR	3944	0	24583	4672	98	10106	12253	132	1994	S

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Plan Alloc Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
											Excel.	Good	Fair	Poor	Unsuit
4719	OREGON RESERVOIR	C	M	Y PT	0415 0801	S	60	0	305	0	4	119	163	18	1 S
4720	CLARA RESERVOIR	C	M	Y PT	0301 0228	S	22	0	120	0	0	114	6	0	0 S
4721	BITTER CREEK	C	M	Y PT	0510 1008	S	285	0	2563	776	176	1301	857	0	229 S
4722	LITTLE PAPOOSE CREEK	C	I	Y E	0301 0228	RR	439	0	8082	12109	0	3241	4281	42	518 S
4723	LOWER ROCK CREEK	C	M	Y E	0401 1115	RR	1626	0	9289	4796	681	4244	4023	10	331 S
4724	EAGLES NEST COULEE	C	C	Y N	0301 0228	S	49	0	309	145	0	89	216	4	0 S
4725		C	M	Y PT	0320 0101	S	64	0	337	0	15	290	27	0	5 S
4726	LIME CREEK	C	M	Y E	0501 1231	RR	2823	0	18058	3210	80	10449	6451	77	1001 S
4727	WEST ROCK CREEK	C	M	Y PT	0301 1231	S	245	0	1493	0	465	866	161	0	1 S
4728	THOENY	C	I	Y E	0420 1030	S	369	0	2292	1543	109	2055	122	6	0 S
4729	ANTelope SPRING	C	I	Y E	0301 0228	S	343	0	1912	0	0	550	1337	25	0 S
4730	DRY COULEE	C	I	Y P	0501 1130	S	358	0	1436	970	0	574	862	0	0 S
4100		C	M	Y PT	0301 0228	S	78	0	350	160	0	32	318	0	0 S
4101		C	M	Y PT	0501 0901	S	163	0	875	746	0	512	352	11	0 S
4102		C	M	Y PT	0416 1015	S	345	0	2469	482	0	1414	1055	0	0 S
4103		C	C	Y N	0601 0830	S	110	0	413	0	0	0	324	89	0 S
4104		C	M	Y N	0501 1031	S	96	0	420	0	0	184	152	84	0 S
4105		C	M	Y PT	0301 0228	S	192	0	817	260	0	586	231	0	0 S
4106	UPPER RICHARDSON	C	M	Y PT	0516 1015	S	574	0	3031	292	32	1932	1019	48	0 S
4107		C	M	Y N	0301 0228	S	20	0	80	0	0	19	54	0	7 S
4108	UPPER MARTIN COULEE	C	C	Y N	0501 0901	S	103	0	480	0	0	70	410	0	0 S
4109	CHERRY CREEK	C	M	Y PT	0301 0930	S	668	0	3872	474	0	2947	759	0	166 S
4110	UPPER SCHOOL SECTION	C	M	Y N	0301 0228	S	48	0	295	0	0	276	11	0	8 S
4111	FOSS COULEE	C	M	Y PT	0505 1101	S	553	0	2773	360	0	1759	906	74	34 S
4112	UPPER SPRING CREEK	C	I	Y PT	0501 1115	S	906	0	4131	3996	0	2126	1451	516	38 S
4113	SPRING COULEE	C	I	Y P	0501 1023	S	273	0	1321	80	0	258	930	130	3 S
4114	LOWER SPRING COULEE	C	M	Y N	0701 1231	S	18	0	93	0	0	85	7	0	1 S
4115		C	M	Y N	0515 1017	S	119	0	640	0	0	426	203	0	11 S
4116	HAWK COULEE	C	I	Y P	0510 1115	S	739	0	5358	1699	43	3140	1762	0	413 S
4117	CHAPMAN COULEE	C	M	Y PT	0301 0228	S	124	0	786	800	0	725	61	0	0 S
4118	MOONEY COULEE	C	C	Y N	0301 0228	S	58	0	346	0	0	119	227	0	0 S
4119	LOWER MOONEY COULEE	C	C	Y N	0401 0915	S	6	0	200	0	0	66	70	64	0 S
4121	LOWER CHERRY CREEK	C	M	Y N	0415 1001	S	166	0	640	0	0	442	198	0	0 S
4122	LOWER FOSS COULEE	C	M	Y N	0301 1130	S	7	0	220	0	0	149	71	0	0 S
4124	EAST CHERRY CREEK	C	M	Y N	0330 1120	S	108	0	734	0	0	33	701	0	0 S
4125	LOWER PORCUPINE CR.	C	M	Y PT	0301 0228	S	30	0	290	0	0	158	78	0	54 S
4126	DRY WEST	C	M	Y N	0301 0228	S	88	0	400	173	5	393	0	0	2 S
4127		C	M	Y N	0501 0915	S	16	0	80	0	0	80	0	0	0 S
4128	MIDDLE FOSS COULEE	C	M	Y N	0415 1015	S	588	0	860	50	0	594	266	0	0 S
4129	CHERRY CREEK FORKS	C	M	Y N	0316 1116	S	31	0	160	0	0	111	49	0	0 S
4095	UNALLOCATED TRACTS	C	M	Y N	0505 1105	S	24	0	157	0	0	125	32	0	0 S
1		C	N	U			0	0	357	0	21	189	147	0	0 S
4206		C	M	U			0	0	80	0	0	0	80	0	0 S
4020		C	M	PT	0601 0930	S	0	0	1498	234	0	858	149	119	372 S
4030		C	M	PT		S	0	0	2119	1048	0	1342	494	32	251 S

PHILLIPS RESOURCE AREA

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Alloc	Plan Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
												Excel.	Good	Fair	Poor	
5000	Corner	C	C	Y	N	0301 0228	S	142	0	480	0	0	480	0	0	U
5001	Border	C	I	Y	E	0501 1031	DR	525	0	1848	0	0	1266	582	0	U
5002	North Woody Island	C	I	Y	E	0501 1015	RR	1553	107	7411	640	0	7411	0	0	U
5003	West Sunnyslope	C	I	Y	E	0420 1120	DR	277	0	1440	0	0	1360	80	0	U
5004	Mid-Sunnyslope	C	I	Y	PT	0501 0915	S	181	0	800	0	0	800	0	0	S
5006	North Sunnyslope	C	I	Y	PT	0427 1130	S	345	0	1758	0	0	1758	0	0	U
5007	East Sunnyslope	C	I	Y	E	0415 1214	RR	165	145	800	800	0	800	0	0	S
5008	Sunnyslope	C	I	Y	E	0416 1115	RR	704	591	3290	2720	0	3290	0	0	S
5009	Upper Whitewater Ck.	C	I	Y	PT	0501 1130	S	1010	330	4680	1745	0	4563	0	117	S
5010	Fanning Coulee	C	I	Y	PT	0601 1006	S	337	131	1712	776	0	1592	120	0	S
5011	West Big Coulee	C	I	Y	PT	0501 1130	S	1017	62	4312	320	0	4222	90	0	S
5012	Big Coulee	C	I	Y	P	0501 1031	S	3414	868	17138	4769	0	14275	2913	0	S
5013	Divide	C	I	Y	PT	0416 1130	S	1785	198	7706	870	0	7602	104	0	S
5014	North Pea Lake	C	I	Y	E	0501 1031	S	1486	0	5948	0	0	5875	0	73	S
5015	Pea Lake	C	I	Y	PT	0415 1030	S	3110	6	13390	25	0	11870	1444	76	S
5016	Leibel Coulee	C	I	Y	PT	0501 1031	S	471	82	2039	309	0	2039	709	0	S
5019	Elmer Coulee	C	I	Y	PT	0515 1114	S	303	0	1040	0	0	331	1546	0	S
5021	Orrey Coulee	C	I	Y	PT	0420 1031	S	702	348	2900	1192	0	1354	186	0	S
5022	East Plansview	C	I	Y	PT	0415 0715	S	421	22	1966	90	0	1770	104	0	S
5023	Frenchman Creek	M	I	Y	P	0301 0228	S	1878	1157	22312	6822	0	10758	7016	0	S
5024	Upper Snake Creek	C	I	Y	PT	0401 1231	S	1042	1112	7535	5985	0	4532	1889	0	S
5025	Middle Frenchman	C	C	Y	N	0301 0228	S	128	0	1090	0	0	690	117	0	S
5026	Wotkey Coulee	C	I	Y	P	0415 1031	S	1320	182	10722	1130	0	6396	4326	0	S
5027	Cottonwood Creek	C	I	Y	PT	0515 1114	S	696	510	6016	2790	0	4038	955	0	S
5028	West Cottonwood	C	C	Y	N	0301 0228	S	110	0	575	0	0	334	237	0	S
5029	Wright Coulee	C	C	Y	N	0301 0228	S	67	0	365	0	0	265	100	0	S
5030	Dunhan Coulee	C	I	Y	E	0401 1130	RR	910	20	2813	95	0	2528	262	0	S
5031	Wallis Coulee	C	I	Y	PT	0601 0801	S	232	214	1400	1000	0	1237	163	0	S
5032	Johns Coulee	C	C	Y	N	0301 0228	S	98	0	400	0	0	400	0	0	S
5033	Kashaw Coulee	C	I	Y	PT	0501 1005	S	207	0	960	0	0	384	576	0	S
5034	Plainsview	C	I	Y	E	0501 1015	RR	942	0	4176	0	0	3330	846	0	S
5035	North Whitewater Lk.	C	I	Y	PT	0506 1125	S	1391	175	6745	800	0	4738	1924	83	U
5036	West Whitewater Lake	C	I	Y	E	0601 1031	RR	1467	310	7473	1535	0	7473	0	0	U
5037	Lone Tree Coulee	C	I	Y	E	0501 1031	RR	1531	222	7191	1062	0	6936	254	0	U
5038	Reservoir	C	I	Y	E	0501 1001	DR	214	28	1039	145	0	610	429	0	S
5039	Whitewater Creek	C	I	Y	PT	0501 0930	S	1124	259	5453	1295	0	4816	637	0	S
5040	Wren Coulee	C	C	Y	N	0301 0228	S	210	0	1062	0	0	1048	14	0	S
5041	Lake Coulee	C	I	Y	PT	0501 1004	S	1078	435	5772	2271	0	5742	30	0	S
5042	Flat Coulee	C	I	Y	PT	0501 0930	S	481	206	2597	960	0	2568	29	0	S
5043	Horseshoe Lake	C	I	Y	PT	0420 1201	S	2424	699	11467	3179	0	9457	1990	0	S
5044	North Horseshoe Lake	C	I	Y	PT	0415 1031	S	385	75	1964	400	0	1964	0	0	U
5045	ALL Pronto	C	C	Y	N	0301 0228	S	97	0	640	0	0	488	152	0	S
5046	North Cowie Coulee	C	C	Y	N	0301 0228	S	112	0	510	0	0	510	0	0	S
5047	Horseshoe Coulee	C	I	Y	E	0501 0105	DR	1404	799	6526	3576	0	5873	641	0	U
5048	Countyline	C	C	Y	N	0301 0228	S	9	0	40	0	0	14	26	0	S
5049	N. Black Coulee	C	C	Y	N	0301 0228	S	27	0	152	0	0	94	34	0	S
5050	Kegal Coulee	C	C	Y	N	0301 0228	S	37	0	235	0	0	139	74	0	S
5051	Woody Island	C	I	Y	E	0401 1015	RR	1868	821	12105	8012	0	9788	1763	0	U

Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Plan Alloc Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition			Trend
											Excel.	Good	Poor	Unsuit
					From	To								
5052	Cowie Coulee	C	C	Y	N	0501	109	0	455	0	0	455	0	0
5053	Take-Away	C	I	Y	PT	0501	509	0	2905	0	0	2854	0	51
5055	Martin Lake Coulee	C	C	Y	N	0301	50	0	285	0	0	233	49	3
5056	Lower Lake Coulee	C	I	Y	PT	0510	221	0	1180	0	0	909	271	0
5058	North Dibble Coulee	C	C	Y	N	0301	131	0	650	0	0	650	0	0
5059	Dibble Coulee	C	I	Y	PT	0501	451	503	2125	1997	0	1842	283	0
5060	South Dibble Coulee	C	C	Y	N	0301	9	0	40	0	0	40	0	0
5061	Upper Sink Coulee	C	C	Y	N	0301	90	0	480	0	0	411	69	0
5062	Austin Lake	C	I	Y	PT	0505	1851	193	9560	1270	0	7461	2078	21
5063	Sink Coulee	C	C	Y	N	0301	204	0	1133	0	0	517	616	0
5064	Whitewater	C	I	Y	PT	0426	256	40	1486	270	0	1486	0	0
5065	Eastfork Whitewater	C	I	Y	E	0401	1206	377	6202	2169	0	5599	601	2
5066	Provost Coulee	C	I	Y	PT	0501	520	67	2655	320	0	2025	625	5
5067	Lone Tree	C	I	Y	PT	0501	130	9	760	65	0	747	0	13
5068	Whitewater Lake	C	M	N	N		0	0	788	0	0	788	0	0
5069	Westfork Stinky	C	I	Y	PT	0501	398	15	1705	160	0	1705	0	0
5070	Stinky Creek	C	C	Y	N	0301	99	0	720	0	0	218	477	25
5071	Turkey Track	C	I	Y	PT	0516	1182	711	6040	3527	0	5882	0	158
5072	Upper E. Fk. Stinky	C	C	Y	N	0301	122	0	552	0	0	552	0	0
5073	Eklund Coulee	C	M	Y	PT	0501	181	320	1915	2061	0	1499	0	416
5074	Corral Coulee	C	C	Y	N	0301	73	0	320	0	0	0	320	0
5075	Two Mile Coulee	C	I	Y	PT	0301	303	0	2887	0	0	2343	134	410
5076	Pan Handle Coulee	C	C	Y	N	0301	142	0	794	0	0	248	514	32
5077	Ash Coulee	C	C	Y	N	0301	27	0	153	0	0	107	37	9
5078	Rattlesnake Coulee	C	C	Y	N	0301	60	0	310	0	0	62	248	0
5080	Eastfork Stinky Crk.	C	C	Y	N	0301	431	0	1960	0	0	1288	640	32
5081	Forty	C	C	Y	N	0301	10	0	40	0	0	0	40	0
5082	Bench	C	C	Y	N	0301	15	0	80	0	0	80	0	0
5084	Upper Coop Coulee	C	I	Y	E	0515	329	162	1906	960	0	953	953	0
5085	Coop Coulee	C	I	Y	E	0401	168	10	896	80	0	896	0	0
5086	Lower Coop Coulee	C	I	Y	PT	0415	557	35	2786	190	0	2322	464	0
5087	Joe Bell Coulee	C	I	Y	E	0501	1352	1185	6802	5877	0	6329	473	0
5088	Lower Lush Coulee	C	C	Y	N	0501	128	0	592	0	0	506	86	0
5089	Martins Coulee	C	I	Y	E	0501	2945	1916	14916	10144	0	11706	3037	173
5090	Lush Coulee	C	C	Y	N	0301	59	0	240	0	0	240	0	0
5091	Belle Coulee	C	C	Y	N	0301	186	0	1020	0	0	996	0	24
5092	Mount Coulee	C	C	Y	N	0301	37	0	215	0	0	213	0	2
5093	Lambing Coulee	C	I	Y	E	0515	2054	443	10000	2176	0	5446	4545	9
5094	Upper Cottonwood	C	I	Y	E	0501	2436	793	14820	4905	0	13141	1679	0
5095	Joiner Coulee	C	I	Y	P	0412	849	234	5151	1355	0	2521	2423	207
5096	Lamere Coulee	C	I	Y	E	0415	2021	196	15133	1492	0	9277	4675	1181
5097	Black Coulee	C	M	Y	PT	0425	750	324	3215	1284	0	2452	685	78
5100	Mud Creek	C	I	Y	PT	0501	340	37	1775	160	0	622	1153	0
5101	Upper Mud Creek	C	C	Y	N	0301	197	0	880	0	0	763	117	0
5102	Upper Northfork	C	C	Y	N	0301	19	0	120	0	0	40	80	0
5103	South Joiner Coulee	M	C	Y	N	0301	186	0	880	0	0	547	325	8
5104	Pierson Coulee	C	M	Y	PT	0501	123	85	730	380	0	569	161	0
5105	Upper Pierson Coulee	C	C	Y	N	0301	18	0	80	0	0	0	80	0
5106	Shed Coulee	C	I	Y	N	0301	295	0	1662	0	0	1370	273	19

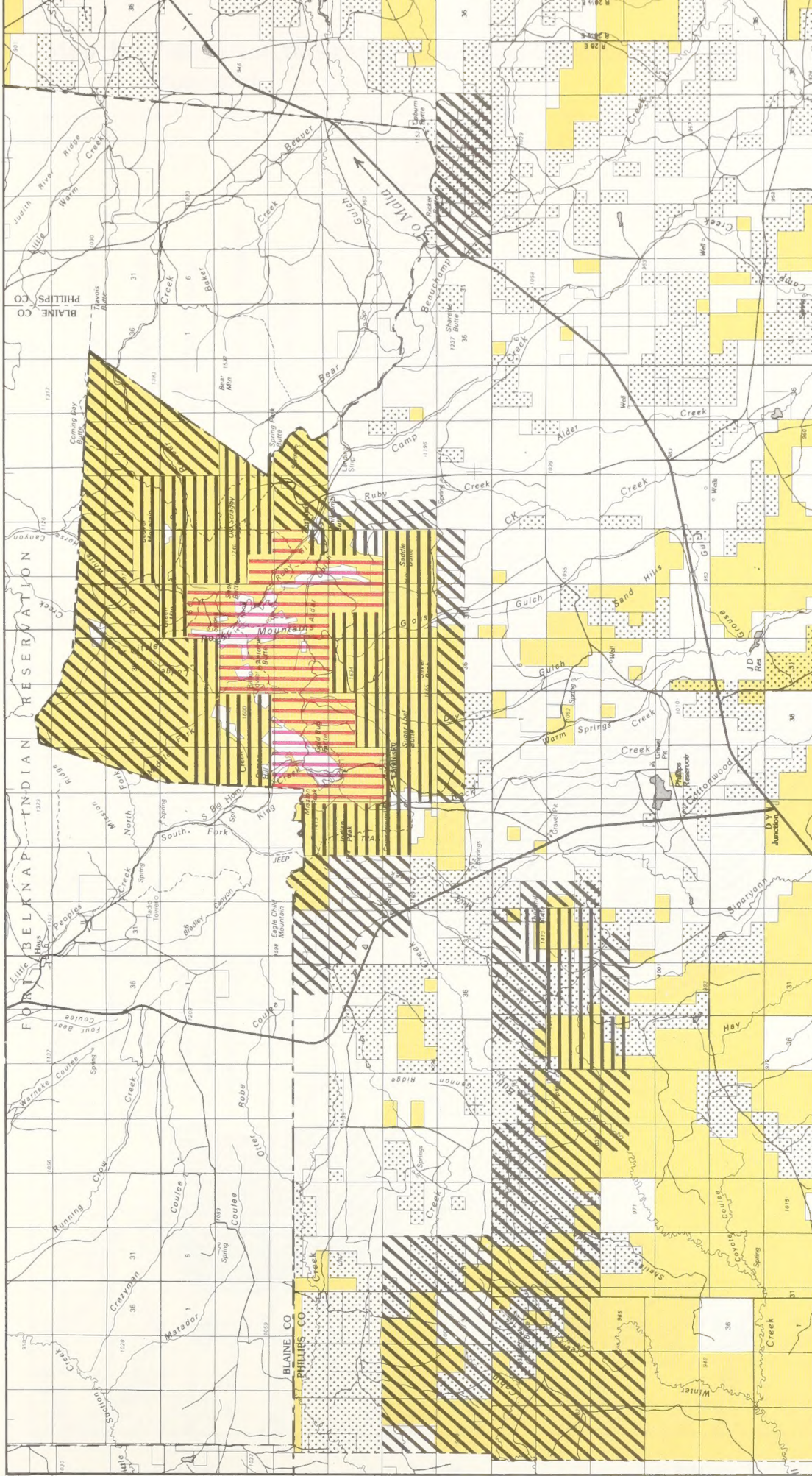
Allot Number	Allotment Name	Lvst Mgt Kind	Graz. Plan Alloc Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
										Excel.	Good	Fair	Poor	Unsuit
				From	To									
5107	Garland Creek	C	I Y PT	1101	0430	799	129	4560	780	0	4181	146	0	233 S
5108	Davenport Coulee	C	C Y Y	0301	0228	158	0	970	0	0	849	84	0	37 S
5109	West Garland Creek	C	I Y E	0501	1031	939	759	4996	3460	0	4186	465	231	114 S
5110	East Garland Creek	C	I Y E	0501	1031	1014	983	6122	6280	0	5606	172	48	296 S
5111	Little Cottonwood Ck	C	M Y E	0501	1031	850	1510	4415	8473	0	2975	1141	0	299 S
5112	Bughouse Coulee	C	C Y N	0501	1031	309	0	1665	0	0	1497	80	57	31 S
5114	River Unit	C	C Y N	0301	0228	31	0	392	0	0	241	82	0	69 S
5115	Big Bend	C	C Y E	0401	0531	227	269	1474	1687	0	1023	367	0	84 S
5116	Alkali Coulee	C	I Y PT	0515	1115	772	329	3447	1440	0	2764	668	0	15 D
5118	Lower Stinky Creek	C	C Y N	0301	0228	80	0	447	0	0	191	244	0	12 S
5119	West Stinky Creek	C	C Y N	0301	0228	19	0	145	0	0	96	42	0	7 S
5120	East Stinky Creek	C	C Y N	0301	0228	6	0	40	0	0	40	0	0	0 S
5121	Little Coulee	C	C Y N	0301	0228	17	0	80	0	0	80	0	0	0 S
5122	Rock Coulee	C	C Y N	0301	0228	98	0	928	0	0	259	614	0	55 S
5123	Brush Coulee	C	C Y N	0301	0228	53	0	360	0	0	331	28	0	1 S
5124	Burnt Shed Coulee	C	C Y N	0301	0228	45	0	200	0	0	36	160	0	4 S
5125	McChesney Reservoir	C	C Y N	0301	0228	6	0	80	0	0	80	0	0	0 S
5126	Lemke Coulee	C	C Y N	0301	0228	23	0	114	0	0	89	25	0	0 S
5127	Dry Stinky Coulee	C	C Y N	0301	0228	51	0	320	0	0	107	213	0	0 S
5128	East Lower Stinky Cr	C	C Y N	0301	0228	8	0	45	0	0	13	32	0	0 S
5129	Lower Whitewater	C	C Y N	0301	0228	57	0	320	0	0	320	0	0	0 S
5130	Horse Camp Coulee	C	I Y E	0415	0913	813	349	3056	3102	0	2896	160	0	0 S
5131	Basin Coulee	C	I Y PT	0407	1014	731	196	2542	783	0	2496	46	0	0 U
5132	Assiniboine East	C	I Y PT	0630	1011	200	63	940	320	0	940	0	0	0 S
5133	Assiniboine Creek	C	I Y E	0415	1031	828	0	4028	0	0	3379	626	0	23 S
5134	Assiniboine West	C	C Y N	0301	0228	61	0	260	0	0	260	0	0	0 U
5135	Southfork Garland	C	C Y N	0301	0228	81	0	371	0	0	371	0	0	0 S
5137	Goertz Coulee	C	C Y N	0301	0228	9	0	40	0	0	40	0	0	0 S
5138	East Sheep Coulee	C	C Y N	0301	0228	20	0	80	0	0	77	3	0	0 S
5139	Sheep Coulee	C	C Y N	0301	0228	145	0	640	0	0	538	102	0	0 S
5140	Williams Coulee	C	C Y N	0301	0228	42	0	200	0	0	120	80	0	0 S
5142	Wetland	C	C Y N	0301	0228	0	0	80	0	0	80	0	0	0 S
5144	Dodson Creek	C	I Y PT	0714	1110	964	339	4945	1660	0	4920	3	0	22 S
5145	East Eureka Creek	C	C Y N	0301	0228	33	0	310	0	0	210	100	0	0 S
5146	Vaughn Coulee	C	C Y N	0301	0228	42	0	280	0	0	280	0	0	0 S
5147	Lower Vaughn Coulee	C	C Y N	0301	0228	8	0	80	0	0	80	0	0	0 S
5148	Upper Spring Creek	C	C Y N	0301	0228	51	0	240	0	0	0	240	0	0 S
5149	Spring Creek	C	C Y N	0301	0228	118	0	763	0	0	598	143	0	22 S
5150	Upper Exeter Creek	C	C Y N	0301	0228	102	0	500	0	0	39	461	0	0 S
5151	Dry Coulee	C	C Y N	0301	0228	30	0	120	0	0	120	0	0	0 S
5152	Exeter Creek	C	I Y PT	0515	1031	284	96	1323	441	0	1115	208	0	0 S
5153	Wilson Coulee	C	I Y PT	0501	1113	820	140	3735	628	0	2959	771	0	5 S
5154	Dry Fork	C	I Y PT	0401	1215	430	103	2444	430	0	2290	84	0	70 S
5155	Spring Creek	C	I Y PT	0415	0808	416	266	2295	1535	0	1639	598	0	58 S
5156	Lower Assiniboine	C	C Y N	0301	0228	115	0	565	0	0	449	115	0	1 S
5157	Lower Rattlesnake Co	C	C Y N	0301	0228	12	0	80	0	0	78	0	0	2 S
5158	Loring	C	C Y N	0301	0228	56	0	284	0	0	128	150	0	6 S
5300	South Big Bend	C	I Y E	0516	1031	896	226	3736	788	0	3451	285	0	0 S
5301	Dry Lake	C	C Y	0501	1031	257	0	1205	0	0	1171	0	0	34 S

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										Excel.	Good	Fair	Poor	Unsuit
				From	To									
5303	Canty Coulee	C	C Y N	0301	0228	S	207	0	1036	0	865	138	0	33 S
5304	West Hewitt Lake	C	I Y PT	0501	1115	S	643	639	2735	2594	0	425	0	18 S
5305	Lone Tree Sag	C	C Y N	0301	0228	S	55	0	260	0	134	120	0	6 S
5307	Big Bend	C	I Y E	1101	0228	DR	540	261	2223	1243	0	0	0	0 S
5308	McNeil Slough	C	C Y N	0301	0228	S	54	0	216	0	0	216	0	0 S
5309	South Hewitt Lake	C	I Y PT	0301	0228	S	203	0	802	0	753	40	0	9 S
5310	North Nelson	C	C Y N	0301	0228	S	34	0	195	0	0	195	0	0 S
5393	Nelson Reservoir	C	C Y N	0301	0228	S	10	0	78	0	78	0	0	0 S
5312	Saco Dump	C	C Y N	0301	0228	S	262	0	1265	0	821	395	0	49 S
5313	West Saco Dump	C	C Y N	0301	0228	S	21	0	110	0	66	37	0	7 S
5314	North First Creek	C	C Y N	0301	0228	S	37	0	265	0	162	85	0	18 S
5315	Saco	C	C Y N	0301	0228	S	421	0	2082	0	1792	177	0	113 S
5316	Saco Hills	C	M Y PT	0515	1114	S	876	432	5473	2355	4031	1095	0	347 S
5317	North Cactus Flat	C	C Y N	0301	0228	S	14	0	180	0	0	180	0	0 S
5318	Cactus Flats	C	C Y N	0301	0228	S	8	0	130	0	0	130	0	0 S
5319	Upper Second Creek	C	M Y PT	0601	0911	S	611	583	2494	2301	2159	253	0	82 S
5320	Thomas Coulee	C	M Y PT	0501	1031	S	197	64	1539	436	1300	0	0	239 S
5321	Northwest Bowdoin	C	C Y N	0301	0228	S	0	0	40	0	40	0	0	0 S
5322	So. Nelson Reservoir	C	C Y N	0301	0228	S	92	0	375	0	0	375	0	0 S
5323	Upper Delaney Coulee	C	C Y N	0301	0228	S	74	0	360	0	360	0	0	0 S
5324	North Bowdoin	C	I Y PT	0501	0930	S	413	159	1867	630	1867	0	0	0 S
5325	Horse Camp Coulee	C	I Y E	0301	0228	S	244	162	1282	802	1282	0	0	0 U
5326	Delaney Coulee	C	C Y N	0301	0228	S	9	0	58	0	58	0	0	0 S
5327	North Rocky Point	C	C Y N	0301	0228	S	17	0	80	0	80	0	0	0 S
5328	Rocky Point	C	C Y N	0301	0228	S	372	0	1760	0	1003	756	0	1 S
5329	Cow Creek	C	I Y E	0415	1115	S	234	33	644	160	322	322	0	0 S
5330	Davison Coulee	C	C Y N	0301	0228	S	93	0	401	0	155	246	0	0 S
5331	Gravel Coulee	C	C Y N	0301	0228	S	85	0	440	0	0	440	0	0 S
5332	Dodson Canal	C	C Y N	0301	0228	S	112	0	700	0	0	700	0	0 S
5333	South Dodson Canal	C	C Y N	0301	0228	S	8	0	40	0	0	28	12	0 S
5334	Lower Alkali Creek	C	C Y N	0301	0228	S	16	0	80	0	80	0	0	0 S
5335	Turnell Coulee	C	C Y N	0301	0228	S	46	0	230	0	103	127	0	0 S
5336	South Bowdoin	C	C Y N	0301	0228	S	136	0	760	0	661	58	0	41 S
5337	North Clanton	C	C Y N	0301	0228	S	180	0	810	0	810	0	0	0 S
5339	Crooks Coulee	C	M Y E	0501	1031	S	458	331	3120	2110	2713	174	0	199 S
5342	Upper Crooks Coulee	C	C Y N	0301	0228	S	133	0	575	0	526	0	0	49 S
5343	Third Creek	C	I Y N	0301	0228	S	422	0	1750	0	1669	17	0	64 S
5344	Fourth Creek	C	I Y E	0516	1031	RR	904	20	4723	819	3987	0	0	128 U
5345	Second Creek	C	C Y E	0516	1115	DR	416	369	1995	2049	1614	214	0	167 S
5346	North Third Creek	C	C Y N	0301	0228	S	66	0	400	0	362	0	0	38 S
5347	West Coulee	C	C Y N	0301	0228	S	17	0	120	0	110	0	0	10 S
5348	Larb Creek	C	I Y Y	0501	1031	DR	34	98	160	340	0	160	0	0 U
5349	Upper Moss Coulee	C	I Y PT	0501	1031	S	629	137	3590	755	3038	0	0	270 S
5351	Riegall Coulee	C	M Y PT	0412	1206	S	820	1343	3565	5244	3344	192	0	29 S
5352	Moss Coulee	C	I Y PT	0605	1001	S	218	0	961	0	891	70	0	0 S
5353	Lower Moss Coulee	C	M Y PT	0701	0930	S	439	0	2892	1281	1942	180	0	5 S
5354	Guston Coulee	C	I Y E	0501	0930	DR	1421	188	9140	0	4753	4387	0	0 S
5355	Alkali Lake Coulee	C	I Y PT	0601	0915	S	141	0	963	0	963	0	0	0 S
5356	Lenoir Coulee	C	C Y N	0301	0228	S	63	0	320	0	320	0	0	0 S

Allot Number	Allotment Name	Lvst Mgt Kind	Graz. Plan Alloc Type	Grazing Season From To	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
										Excel.	Good	Fair	Poor	Unsuit
5357	Rock Corral	C	C Y N	0301 0228	S	274	0	1527	0	0	902	576	41	8 S
5358	North Seven Mile	C	C Y N	0301 0228	S	7	0	40	0	0	40	0	0	0 S
5359	Upper Tetrault Coul.	C	C Y N	0301 0228	S	139	0	640	0	0	599	41	0	0 S
5360	South Lepoir Coul.	C	C Y N	0301 0228	S	34	0	160	0	0	44	93	0	23 S
5361	Tetrault Coulee	C	C N N	0301 0228	S	0	0	30	0	0	30	0	0	0 S
5362	Upper Gonzales Coul.	C	C Y N	0301 0228	S	47	0	200	0	0	98	102	0	0 S
5363	Black Coulee	C	I Y E	0416 1015	RR	439	84	1600	345	0	1600	0	0	0 S
5364	Middle Black Coulee	C	C Y N	0301 0228	S	7	0	40	0	0	40	0	0	0 S
5365	Junction	C	C Y N	0301 0228	S	78	0	320	0	0	160	160	0	0 S
5366	Waters Holding Past.	C	C Y N	0416 0515	S	115	0	480	0	0	480	0	0	0 U
5367	East Alkali	C	C Y N	0301 0228	S	247	0	1240	0	0	935	305	0	0 S
5368	Beavers	C	C Y E	0501 1031	RR	255	75	880	324	0	741	139	0	0 S
5369	South Alkali Creek	C	I Y PT	0501 1031	S	517	231	2920	1087	0	2398	496	0	26 S
5370	West Bench	C	C Y N	0301 0228	S	29	0	165	0	0	138	21	0	6 S
5371	East Bench	C	C Y N	0301 0228	S	68	0	320	0	0	320	0	0	0 S
5372	Alkali Creek	C	I Y PT	0401 1130	S	960	236	4948	1193	0	1134	3755	0	59 S
5373	Lower Half-Way Coul.	C	C Y N	0301 0228	S	114	0	640	0	0	129	511	0	0 S
5374	Half Way Coulee	C	I Y E	0415 1114	RR	532	25	2190	160	0	2190	0	0	0 U
5376	Nice Pond	C	C Y N	0301 0228	S	145	0	705	0	0	63	642	0	0 S
5378	Upper Wind Coulee	C	C Y N	0301 0228	S	105	0	640	0	0	0	640	0	0 S
5379	Wind Coulee	C	C Y N	0301 0228	S	54	0	200	0	0	50	150	0	0 S
5380	Upper Cow Creek	C	C Y N	0301 0228	S	19	0	160	0	0	92	68	0	0 S
5383	Upper West Alkali	C	C Y N	0301 0228	S	38	0	340	0	0	0	340	0	0 S
5384	North Wild Horse	C	C Y N	0301 0228	S	143	0	1142	0	0	39	911	155	37 S
5385	South Wild Horse	C	I Y PT	0415 1015	S	116	219	822	1215	0	64	731	0	27 S
5386	Tressler Coulee	C	I Y PT	0301 0228	S	647	24	4154	150	0	2492	1662	0	0 S
5387	West Alkali Creek	C	I Y E	0501 1015	DR	1841	2102	9871	10808	0	5658	3980	0	233 S
5388	Rudolph Coulee	C	I Y E	0501 1031	RR	2106	582	6947	1983	640	4575	1732	0	0 U
5389	Upper Alkali Creek	C	I Y PT	0501 1031	S	220	37	960	160	0	960	0	0	0 S
5390	Upper Overflow Coul.	C	I Y PT	0501 0930	S	478	421	2682	2076	0	228	2454	0	0 S
5391	N. Overflow Coulee	C	C Y N	0301 0228	S	137	0	640	0	0	0	640	0	0 S
5392	Bennett Lake	C	C Y N	0301 0228	S	139	0	440	0	0	440	0	0	0 S
5398	North DHS Creek	C	C Y N	0301 0228	S	43	0	260	0	0	30	111	119	0 S
5399	Southfork Cottonwood	C	I Y PT	0415 0930	S	240	64	1367	354	0	0	1366	0	1 D
5400	Northfork Cottonwood	C	I Y PT	0301 0228	S	155	221	970	1244	0	970	0	0	0 U
5401	Seven Mile Coulee	C	C Y N	0301 0228	S	128	0	640	0	0	0	618	0	22 D
5402	Lower Seven Mile	C	I Y PT	0701 0930	S	352	0	2210	0	0	2104	103	0	3 U
5404	Cottonwood Creek	C	C Y N	0301 0228	S	76	0	415	0	0	349	66	0	0 S
5405	Lower Cottonwood Crk	C	I Y PT	0515 1207	S	1156	620	6991	3829	36	6653	184	0	118 S
5406	Lower Albert Coulee	C	I Y E	0501 1031	DR	1121	1327	5518	3778	0	2722	2716	0	80 U
5407	Albert Coulee	C	I Y E	0501 1031	RR	860	350	3000	1280	0	2340	660	0	0 S
5408	Trueblood Coulee	C	I Y PT	0415 1031	S	2015	457	8456	2073	0	5448	2956	0	52 S
5409	Lower D.H.S. Creek	C	C Y N	0301 0228	S	108	0	623	0	0	79	544	0	0 D
5410	D.H.S. Creek	C	C Y N	0301 0228	S	135	0	721	0	0	0	721	0	0 D
5411	Beaver Creek	C	I Y PT	0601 1130	S	614	200	4781	1841	0	4147	400	0	234 S
5412	Shed Coulee	C	M Y N	0301 0228	S	60	0	735	0	0	564	0	0	171 U
5413	Armstrong Coulee	C	I Y PT	0501 0831	S	476	0	2847	0	0	2847	0	0	0 U
5414	Smith Coulee	C	I Y PT	0501 1031	S	258	187	2187	1484	0	1959	75	0	153 S
5415	Overflow Coulee	C	I Y PT	0501 1031	S	1204	1552	7791	9612	0	3310	3844	581	56 S

Allot Number	Allotment Name	Lvst Mgt Kind	Graz. Plan Alloc Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend
										Excel.	Good	Fair	Poor	Unsuit
				From	To									
5416	Sanford Coulee	C	I Y P	0501	1130	1748	1309	11925	8087	0	7134	4121	0	670 S
5417	Whiterock Coulee	C	I Y E	0501	1031	2056	748	16787	6325	0	9712	5510	3	1562 S
5418	Wildhorse	C	C Y N	0301	0228	147	0	956	0	0	0	951	0	5 S
5419	North Cabbage Coulee	C	C Y N	0301	0228	107	0	650	0	0	645	0	0	5 S
5420	Big Warm Springs Creek	C	C Y N	0301	0228	179	0	1154	0	0	865	234	0	55 S
5421	Cabbage Coulee	C	C Y N	0301	0228	179	0	1120	0	0	1026	80	0	14 S
5422	Spring Coulee	C	C Y N	0301	0228	68	0	388	0	0	140	240	0	8 S
5423	South Spring Coulee	C	C Y N	0301	0228	90	0	522	0	0	139	383	0	0 D
5424	Little Warm Spr. Cr.	C	I Y P	0401	1130	2066	671	11967	3399	0	7944	3692	167	164 S
5425	Upper White Rock	C	C Y N	0301	0228	65	0	479	0	0	2	431	0	46 S
5426	Alkali Coulee	C	I Y PT	0501	1130	872	241	4523	1305	0	4234	284	0	5 S
5427	North Flat Creek	C	I Y E	0501	1031	1815	1156	15594	8314	0	9476	5201	0	917 S
5428	Rheumatism Coulee	C	I Y E	0501	1130	511	0	3948	320	0	635	2576	628	109 S
5429	Spring Creek	C	I Y E	0501	1031	2503	1019	14203	5450	0	13919	284	0	0 S
5430	Tallow Creek	C	C Y N	0301	0228	115	0	810	0	0	0	810	0	0 D
5431	West Larb Creek	C	I Y	0601	1031	283	326	1735	1880	0	260	1475	0	0 S
5432	Upper Black Coulee	C	I Y E	0501	1130	751	30	5810	160	0	5716	94	0	0 S
5433	Lone Tree Creek	C	M Y	0501	1031	621	87	5093	675	0	2903	2190	0	0 S
5434	Shotgun Coulee	C	I Y P	0501	1231	2195	319	17937	2018	575	9643	5768	1951	0 U
5435	Buckley Lake	C	C Y N	0301	0228	114	0	694	0	0	0	694	0	0 S
5436	Lone Horse Coulee	C	I Y PT	0401	1130	765	88	7083	1080	0	4428	1346	0	1309 S
5437	Sage Creek	C	I Y E	0501	1031	329	345	3093	1592	0	1917	1114	62	0 S
5438	North Thomas Coulee	C	M Y PT	0501	1031	137	96	1050	723	0	0	1050	0	0 S
5439	Flat Creek	C	I Y E	0501	1115	1243	275	13075	3070	1192	6535	5456	125	959 S
5440	West Flat Creek	C	I Y E	0501	1031	709	30	9115	390	0	5833	1164	0	926 U
5441	Lower Alkali Coulee	C	I Y E	0501	1031	245	56	1216	320	0	1216	0	0	0 S
5442	Mickey Reservoir	C	I Y PT	0501	1118	602	0	3009	0	0	2901	68	0	40 S
5443	First Creek Hall	C	I Y E	0501	1130	884	265	4228	1202	0	3440	785	0	3 S
5444	Scott Coulee	C	I Y PT	0501	1130	533	399	2679	1825	0	2679	0	0	0 S
5445	Upper First Creek	C	I Y E	0501	1031	723	140	4179	821	0	4179	0	0	0 S
5446	Parrot Coulee	C	I Y PT	0605	1005	478	40	2693	266	0	2041	557	45	50 S
5447	Garey Coulee	C	I Y PT	0501	1130	561	0	3020	0	0	3020	0	0	0 S
5448	Garey Coulee	C	C Y N	0301	0228	133	0	800	0	0	800	0	0	0 S
5450	First Creek School	C	I Y E	0415	1115	217	75	1120	520	0	1120	0	0	0 S
5451	Upper Long Coulee	C	I Y E	0415	1031	375	0	1789	0	0	1789	0	0	0 S
5452	Long Coulee	C	I Y E	0401	1130	1518	760	8504	4147	765	5443	1701	595	0 U
5453	Stratton Coulee	C	I Y E	0401	1130	1194	18	8105	90	764	5278	1865	198	0 S
5454	Dog Creek	C	I Y E	0415	0614	306	80	2049	500	0	240	1716	82	11 D
5455	Lower Dog Creek	C	I Y E	0501	1130	500	181	3115	4990	0	390	2725	0	0 S
5456	Lonestree Coulee	C	I Y PT	0301	0228	103	0	1080	0	0	0	1080	0	0 S
5457	Upper Dog Creek	C	I Y E	0401	1114	554	250	3491	1775	0	200	2420	871	0 S
5458	Coal Mine Coulee	C	M Y E	0401	1130	585	4	3496	25	0	3331	165	0	0 S
5459	Plum Creek	C	C Y N	0301	0228	87	0	482	0	0	0	482	0	0 S
5460	Horse Pasture Coulee	C	I Y PT	0515	1215	489	221	4786	1635	0	4100	180	0	506 S
5461	South Armstrong Coul	C	C Y N	0301	0228	91	0	690	0	0	600	90	0	0 S
5463	Lower Tallow Creek	C	C Y N	0301	0228	71	0	414	0	0	0	414	0	0 U
5464	West Albert Coulee	C	I Y E	0415	1031	948	296	4501	1532	0	4168	333	0	0 S
5465	Upper Tressler Coul.	C	C Y N	0301	0228	57	0	320	0	0	0	320	0	0 S
5600	Parrot Lake	M	I Y PT	0301	0228	719	0	3079	0	0	1277	1712	0	90 S

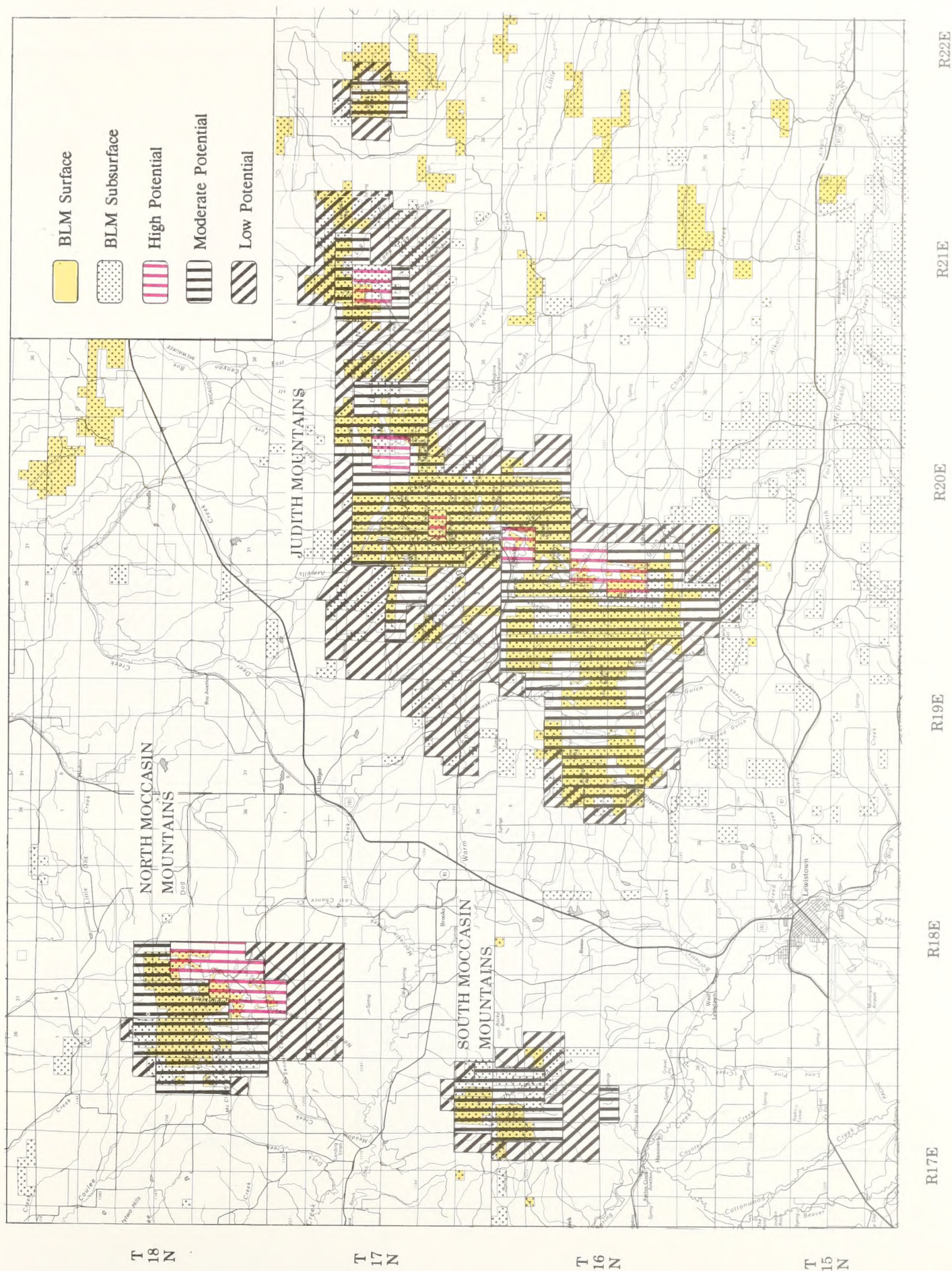
Allot Number	Allotment Name	Lvst Kind	Mgt Cat	Graz. Plan Alloc Type	Grazing Season	Graz. Method	Public AUMs	Other AUMs	Public Acres	Other Acres	Ecological Status/Condition				Trend	
											Excel.	Good	Fair	Poor		Unsuit
5601	Best Coulee	M	I	Y	PT	0401	532	0	2735	0	0	1744	991	0	0	S
5602	Dry Gulch	C	C	Y	N	0516	142	0	0	0	0	0	0	0	0	S
5603	Montana Gulch	C	M	Y	N	0301	59	0	0	0	0	0	0	0	0	S
5604	Upper Bull Creek	C	C	Y	N	0301	36	0	360	0	0	0	360	0	0	S
5605	Upper Cabin Creek	C	C	Y	N	0301	48	0	160	0	0	160	0	0	0	S
5606	Squaw Creek	C	C	Y	N	0301	45	0	255	0	0	0	255	0	0	S
5607	North Cabin Creek	C	M	Y	P	0516	243	267	1111	1256	0	1111	0	0	0	S
5608	Lower Squaw Creek	M	C	Y	N	0301	43	0	177	0	0	0	177	0	0	D
5609	Cabin Creek	C	M	Y	E	0501	762	592	6734	4002	0	6619	115	0	0	S
5610	Antelope Creek	C	I	Y	P	0501	4701	653	45010	5589	0	32338	12467	205	0	S
5611	Upper Cyprian Creek	C	M	Y	P	0301	646	809	3779	4575	0	2765	1014	0	0	S
5612	Square Butte	C	I	Y	P	0501	1857	333	15413	2403	0	9478	5935	0	0	S
5613	Camp Creek	S	I	Y	E	0626	605	1058	3175	4781	0	725	2450	0	0	S
5614	Upper Beauchamp Cr.	C	M	Y	E	0915	593	2280	3051	9945	0	548	2503	0	0	S
5615	West Dry Fork	M	I	Y	E	0501	1923	278	14854	1715	0	4383	10471	0	0	S
5616	French Coulee	C	C	Y	N	0301	7	0	80	0	0	0	80	0	0	S
5617	East Dry Fork	C	I	Y	E	0501	2634	23	18672	205	0	9309	8063	0	1300	S
5618	Upper Garey Coulee	C	I	Y	E	0408	438	0	1551	0	0	1551	0	0	0	S
5619	Lower Garey Coulee	C	C	Y	N	0301	63	0	345	0	0	0	345	0	0	S
5620	Upper Fouchette Cr.	C	I	Y	P	0601	662	527	3296	2267	0	380	2316	0	600	S
5621	Upper C.K. Creek	C	C	Y	N	0301	31	0	204	0	0	0	204	0	0	S
5622	Grouse Creek	C	C	Y	N	0301	116	0	608	0	0	0	608	0	0	S
5623	Upper Seven Mile Cr.	C	I	Y	E	0401	794	272	3809	1280	0	3809	0	0	0	S
5624	East Rock Creek	M	I	Y	E	0601	672	409	4137	2102	0	3946	191	0	0	S
5625	Lavelle Creek	C	I	Y	E	0501	1391	124	9726	940	0	5417	4309	0	0	S
5626	Rock Creek	C	I	Y	P	0501	800	163	5774	1310	107	1704	3963	0	0	S
5627	Nichols Coulee	C	I	Y	E	0401	4608	1836	28078	9790	0	21700	6378	0	0	S
5628	Beauchamp Creek	C	M	Y	P	0501	282	73	2735	640	0	2735	0	0	0	S
5629	Coal Mine Coulee	C	C	Y	N	0301	53	0	423	0	0	0	423	0	0	S
5630	Little Rockies	C	I	N	N		0	0	27820	0	0	27820	0	0	0	S
5631	Cruikshank	C	I	Y	E	0501	989	52	7110	320	0	7110	0	0	0	S
5651	North Fouchette	C	I	Y	E	0415	985	32	5360	175	0	5360	0	0	0	S
5652	Third Creek	C	I	Y	E	0415	1862	97	10128	640	0	5507	4621	0	0	S
5653	Lower Third Creek	C	I	Y	E	0501	700	55	5144	280	0	3179	1965	0	0	S
5654	Telegraph Creek	C	I	Y	E	0401	1481	873	11520	0	0	4245	7275	0	0	S
5655	Box Elder Creek	C	I	Y	E	0415	1041	652	6488	2678	0	2695	3330	463	0	S
5656	Upper Lonetree Coul.	C	C	Y	PT	0301	109	0	544	0	0	544	0	0	0	S
5657	South Fork Telegraph	C	I	Y	P	0501	701	347	3360	1520	0	3360	0	0	0	S
5658	North Fork Telegraph	C	M	Y	E	0415	712	972	4427	4860	0	3483	944	0	0	S
5660	Larb Hills	C	M	Y	P	0401	903	529	6178	2315	0	6178	0	0	0	S
5661	Killed Woman	C	I	Y	E	0501	342	394	2057	2422	0	206	1851	0	0	S
5662	Fouchette Creek	C	I	Y	E	0501	2815	166	20809	1167	0	15190	5202	417	0	S
5663	First Coulee	C	I	Y	E	0501	708	425	4818	2002	674	2409	1638	97	0	S
5665	Karsten Coulee	C	I	Y	E	0501	1108	766	5719	5040	0	1018	2193	2508	0	S
5667	Burnt Lodge	C	I	Y	P	0416	974	639	5285	3172	0	309	4976	0	0	S
5670	Misc. Enclosures	C	N	N			0	0	115	0	0	115	0	0	0	S
5302	Cree Crossing	C	N	PT			0	0	101	0	0	101	0	0	0	S
5117	Upper Exeter Creek	C	C	Y	N	0301	8	0	47	0	0	47	0	0	0	S
5160	Lower Wilson Coulee	C	I	Y	PT	0501	387	410	2037	2460	0	1589	444	0	0	U



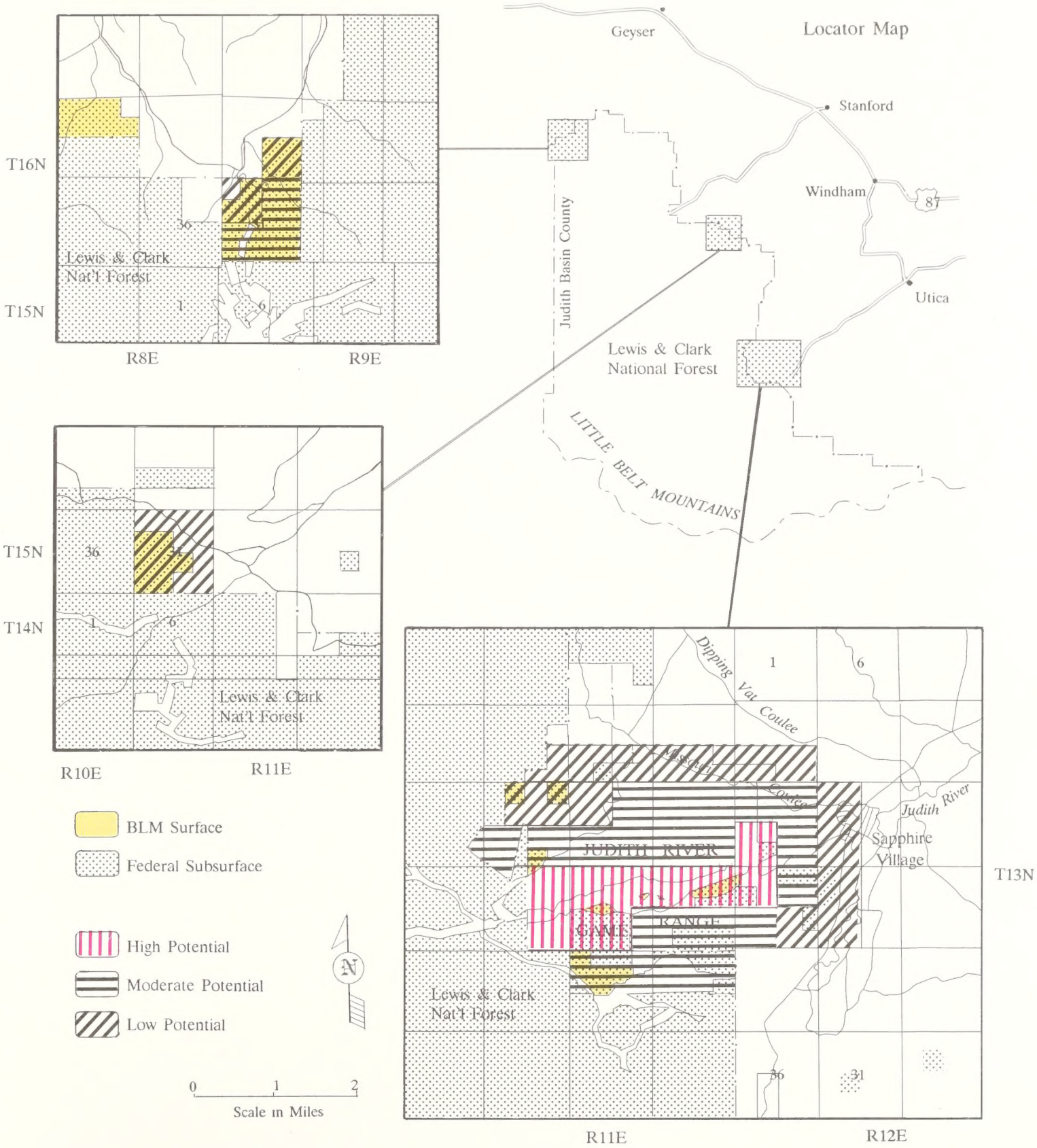
Map J Little Rocky Mountain Hardrock Mineral Development Potential.



Map K Judith and Moccasin Mountains Hardrock Mineral Developm
Potential.



Map L Little Belt Mountains and Yogo Gulch Area Hardrock Mineral Development Potential.

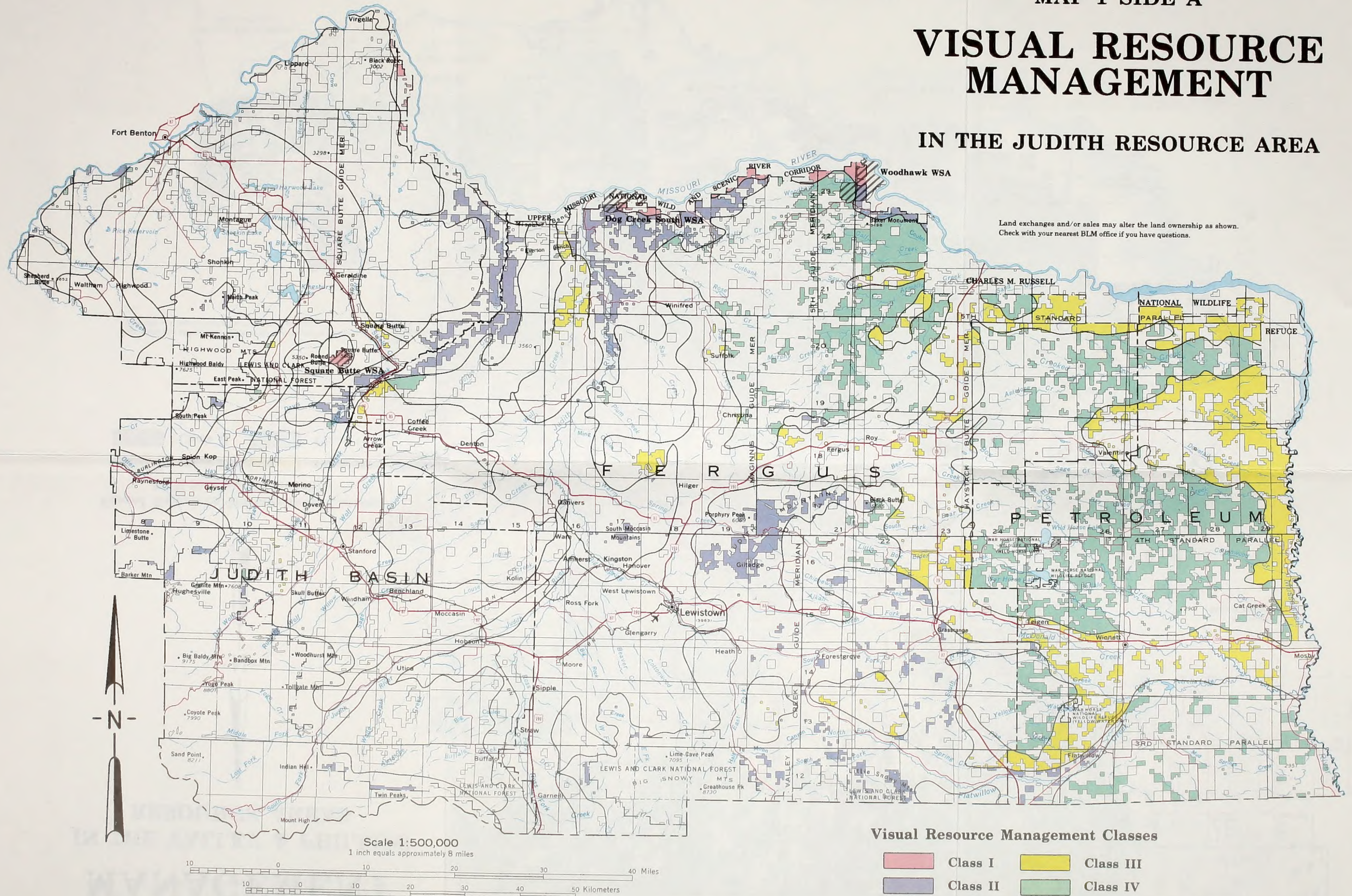


BLM LIBRARY
SC-653, BLDG. 50
DENVER FEDERAL CENTER
P. O. BOX 25047
DENVER, CO 80225-0047

MAP 1 SIDE A

VISUAL RESOURCE MANAGEMENT

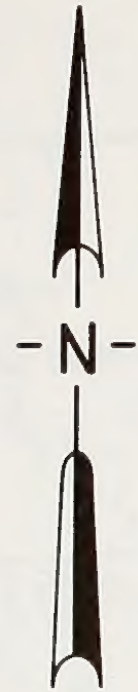
IN THE JUDITH RESOURCE AREA



MAP 1 SIDE B

VISUAL RESOURCE MANAGEMENT

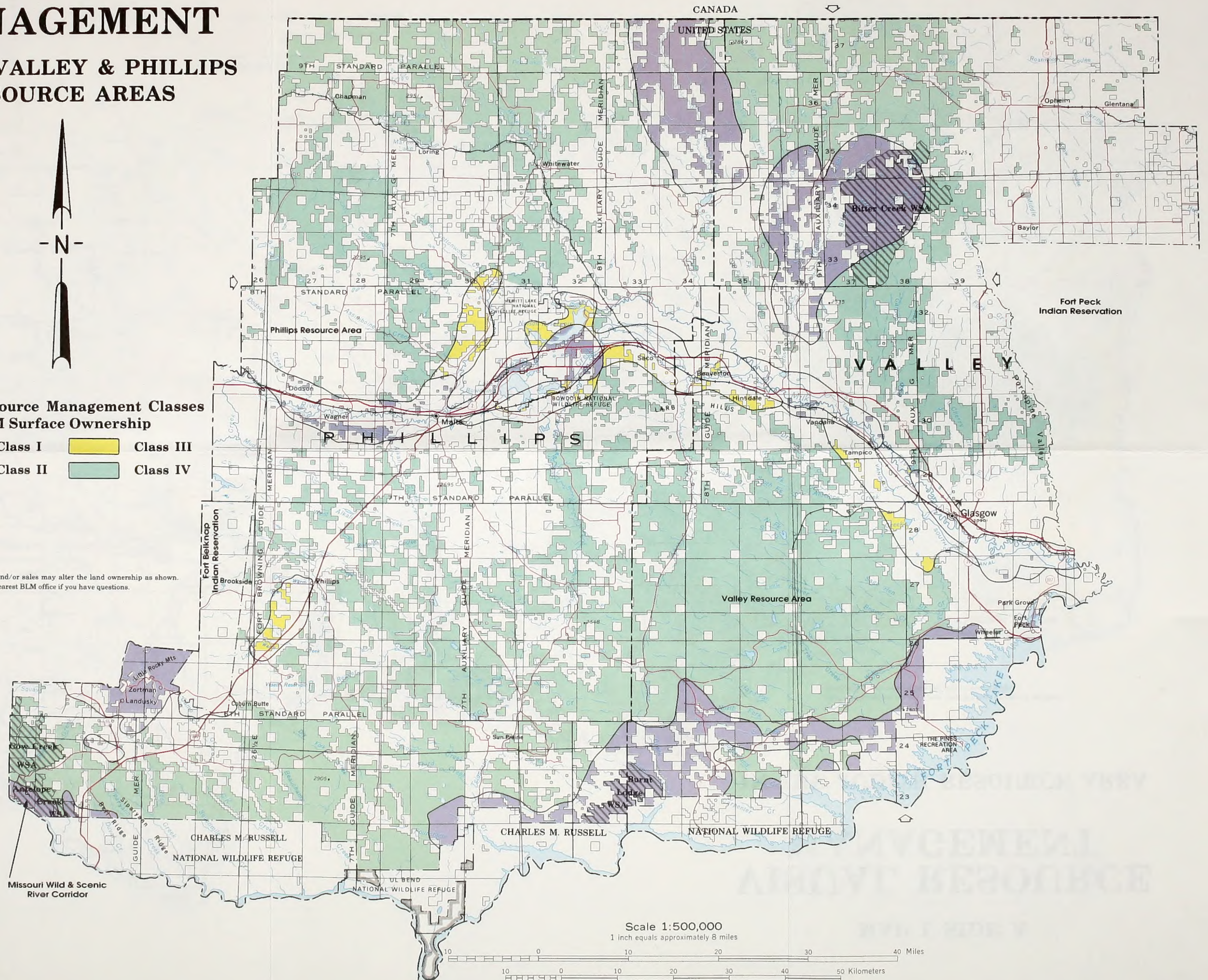
IN THE VALLEY & PHILLIPS
RESOURCE AREAS



Visual Resource Management Classes BLM Surface Ownership

NONE	Class I	Class III
Class II	Class IV	

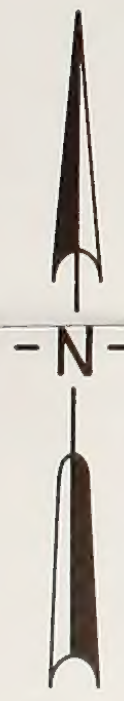
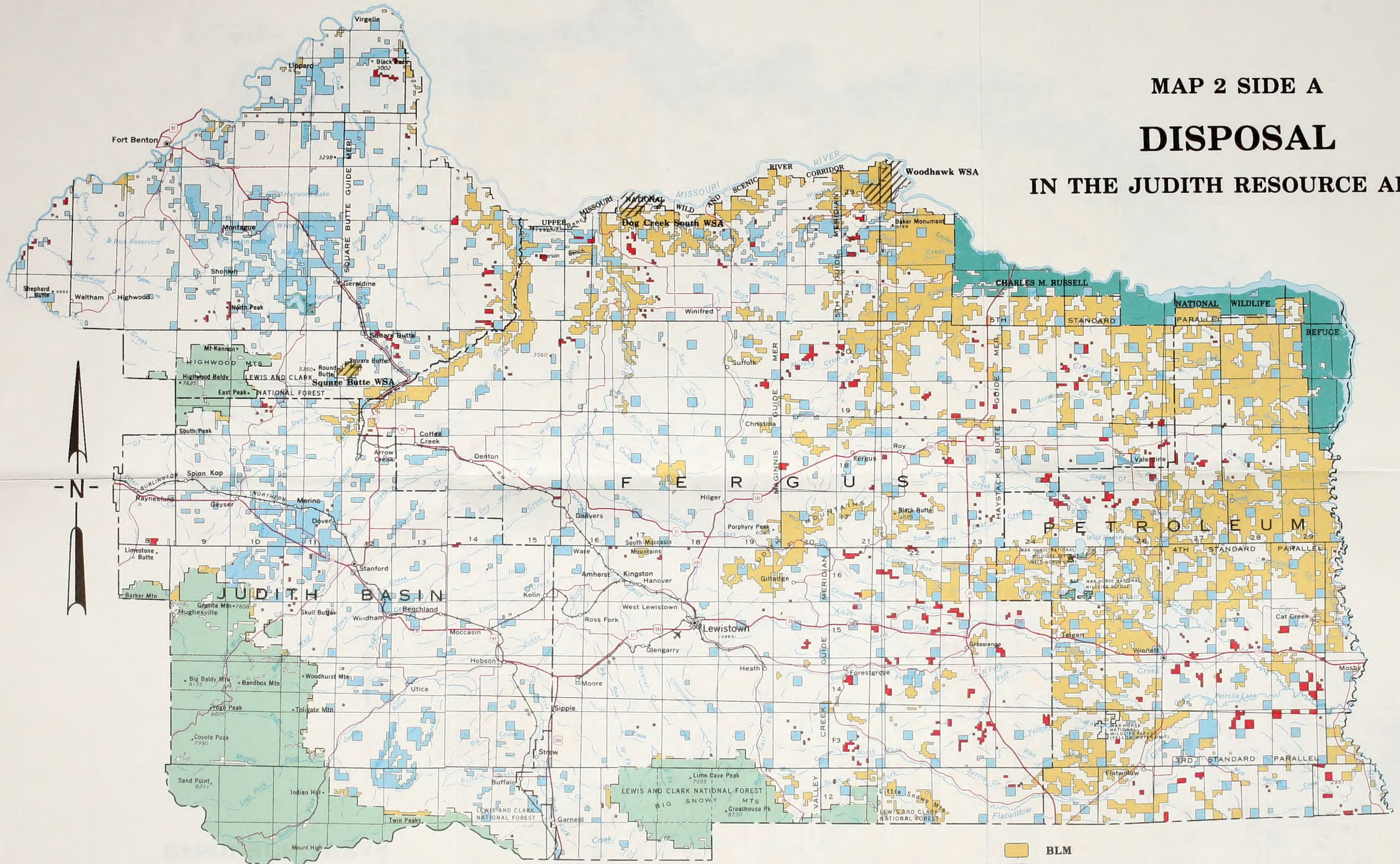
Land exchanges and/or sales may alter the land ownership as shown.
Check with your nearest BLM office if you have questions.



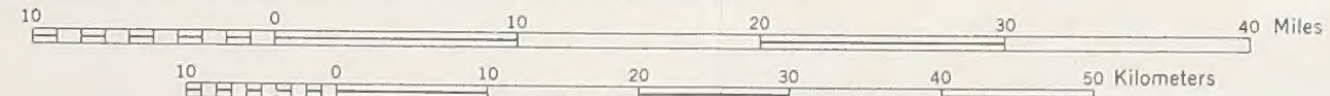
MAP 2 SIDE A

DISPOSAL

IN THE JUDITH RESOURCE AREA



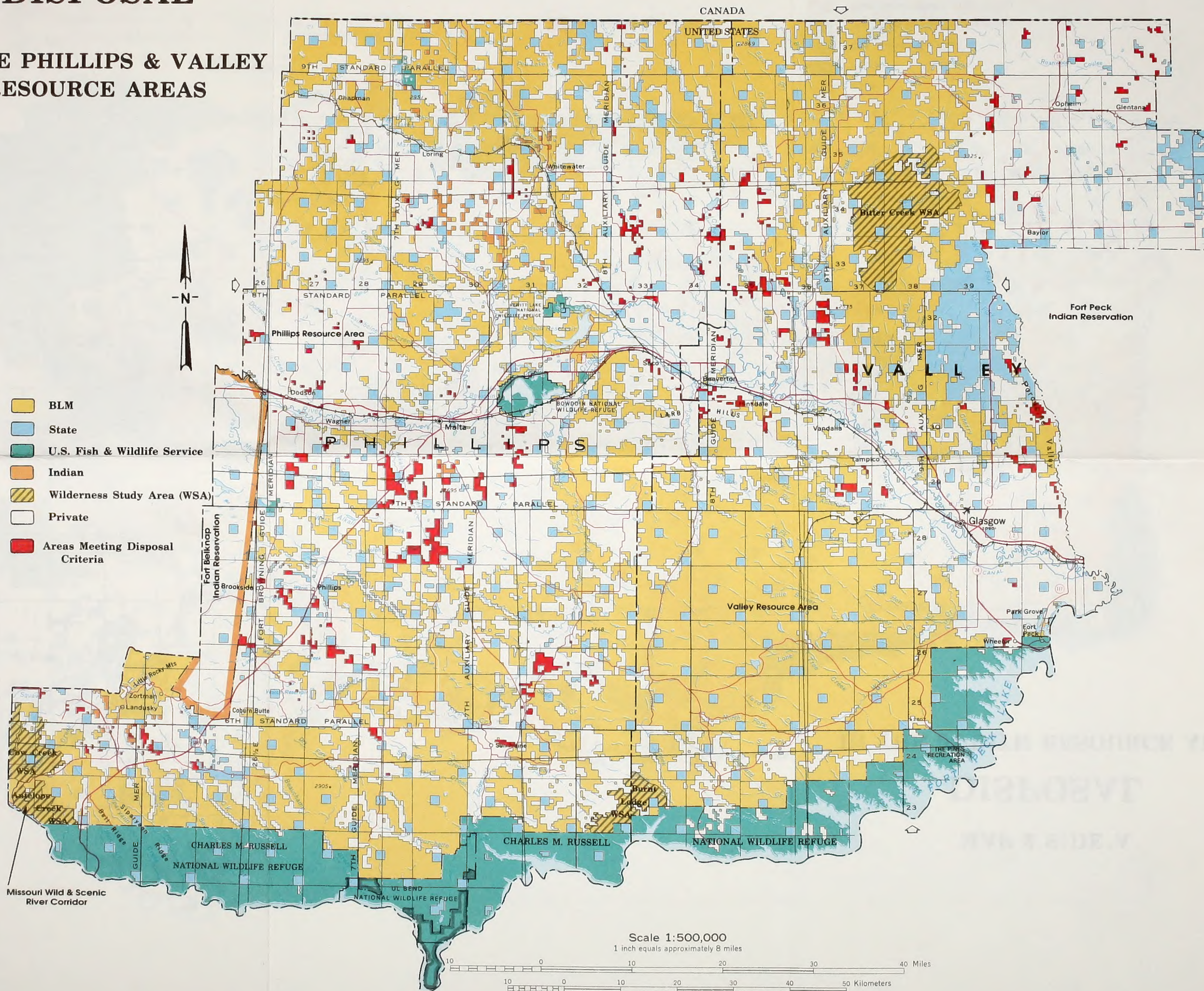
Scale 1:500,000
1 inch equals approximately 8 miles



- BLM
- State
- U.S. Forest Service
- U.S. Fish & Wildlife Service
- Wilderness Study Area (WSA)
- Private
- Areas Meeting Disposal Criteria

DISPOSAL

IN THE PHILLIPS & VALLEY RESOURCE AREAS



ACCESS

ACCESS

IN THE JUDITH RESOURCE AREA

BLM Land Needing
ADDITIONAL
Legal Public Access

BLM Land Needing NEW
Legal Public Access

Scale 1:500,000
1 inch equals approximately 8 miles

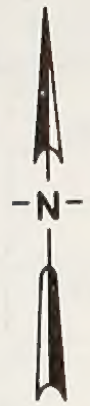
0 10 20 30 40 Miles

0 10 20 30 40 Kilometers

CANADA

UNITED STATES

- BLM Land Needing ADDITIONAL Legal Public Access
- BLM Land Needing NEW Legal Public Access



Missouri Wild & Scenic River Corridor

CHARLES M. RUSSELL NATIONAL WILDLIFE REFUGE

CHARLES M. RUSSELL NATIONAL WILDLIFE REFUGE

NATIONAL WILDLIFE REFUGE

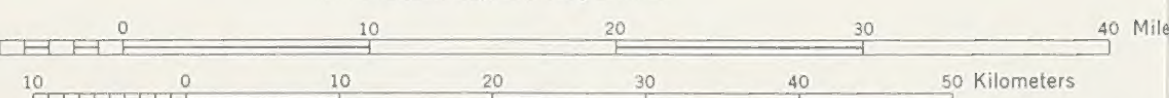
Fort Peck Indian Reservation

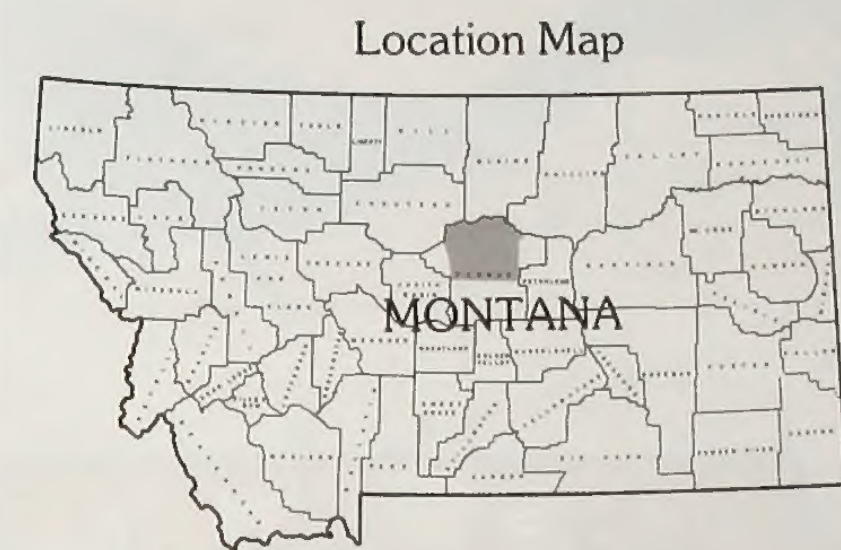
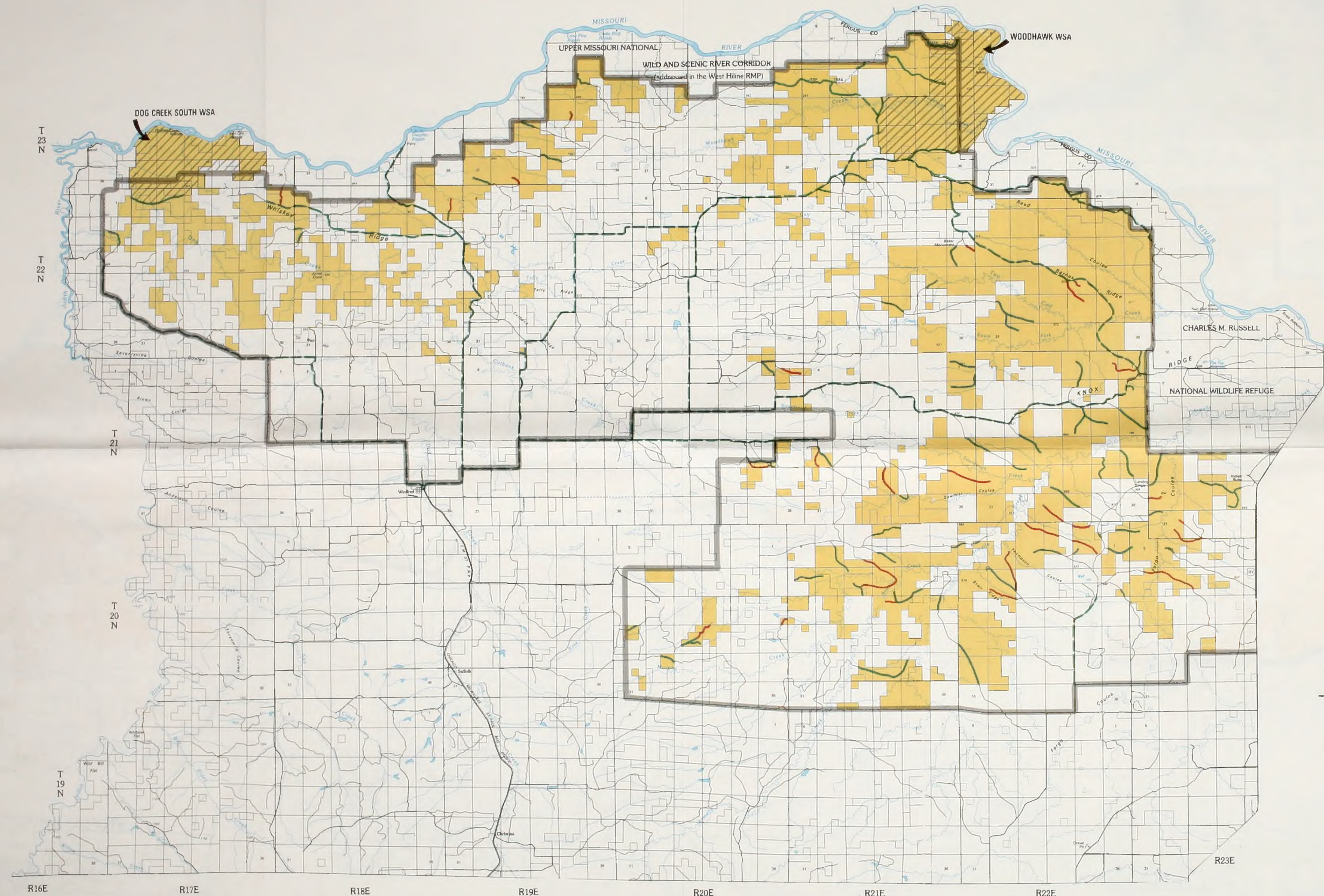
MAP 3 SIDE B

ACCESS

IN THE VALLEY & PHILLIPS RESOURCE AREAS

Scale 1:500,000
1 inch equals approximately 8 miles





U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
1991

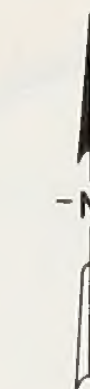
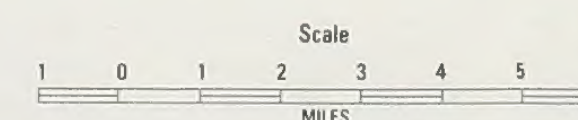
OFF-ROAD VEHICLE TRAVEL PLAN for the JVP Resource Management Plan

MAP4 SIDE A

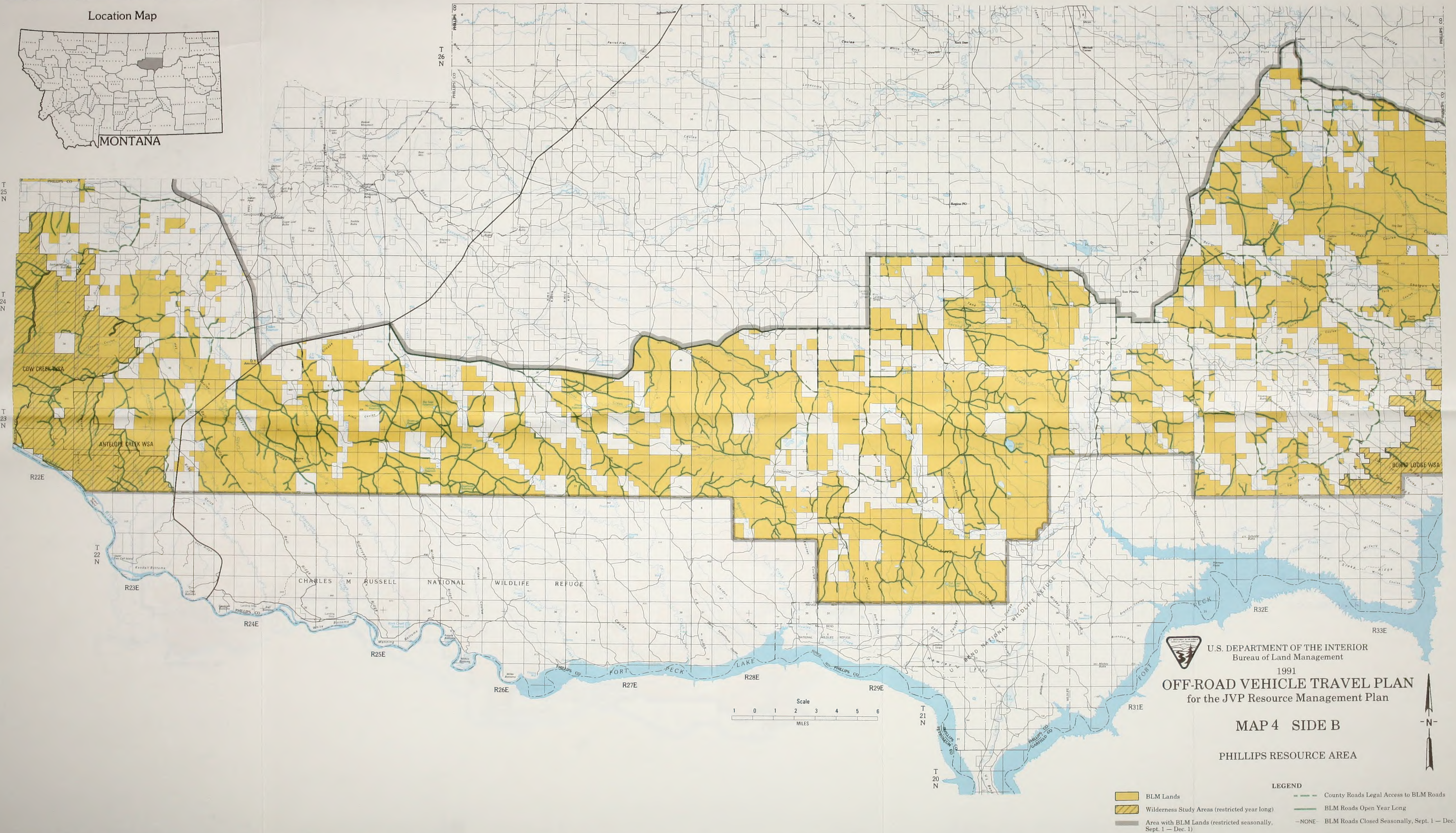
JUDITH RESOURCE AREA
Northwest Portion

LEGEND

- BLM Lands
- Wilderness Study Areas (restricted year long)
- Area with BLM Lands (restricted seasonally, Sept. 1 — Dec. 1)
- County Roads Legal Access to BLM Roads
- BLM Roads Open Year Long
- BLM Roads Closed Seasonally, Sept. 1 — Dec. 1



Location Map

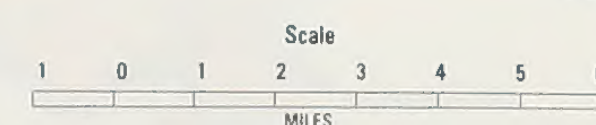


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

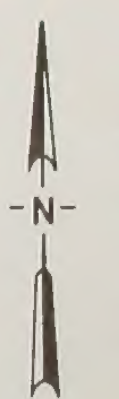
1991
OFF-ROAD VEHICLE TRAVEL PLAN
for the JVP Resource Management Plan

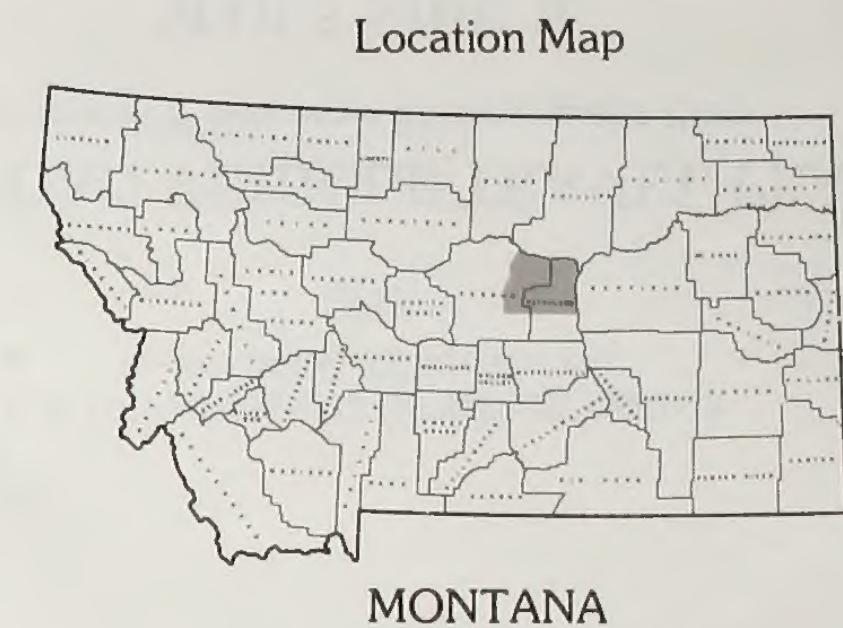
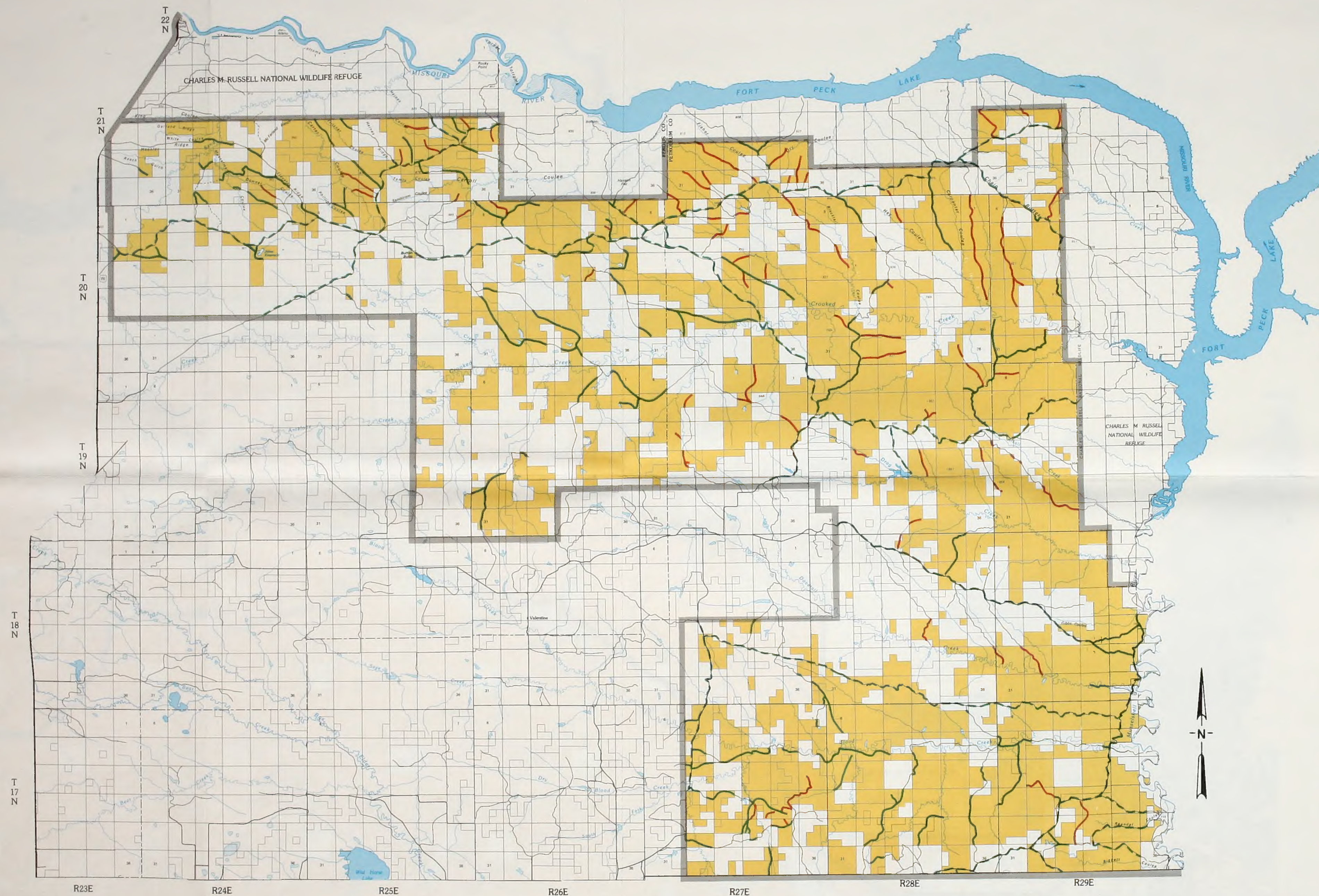
MAP 4 SIDE B

PHILLIPS RESOURCE AREA



- LEGEND**
- BLM Lands
 - Wilderness Study Areas (restricted year long)
 - Area with BLM Lands (restricted seasonally, Sept. 1 — Dec. 1)
 - County Roads Legal Access to BLM Roads
 - BLM Roads Open Year Long
 - NONE— BLM Roads Closed Seasonally, Sept. 1 — Dec. 1





U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1991

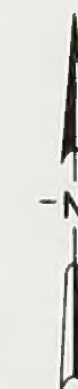
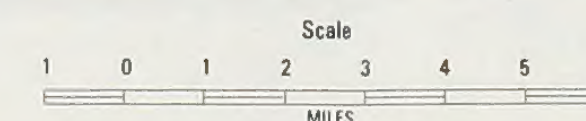
OFF-ROAD VEHICLE TRAVEL PLAN for the JVP Resource Management Plan

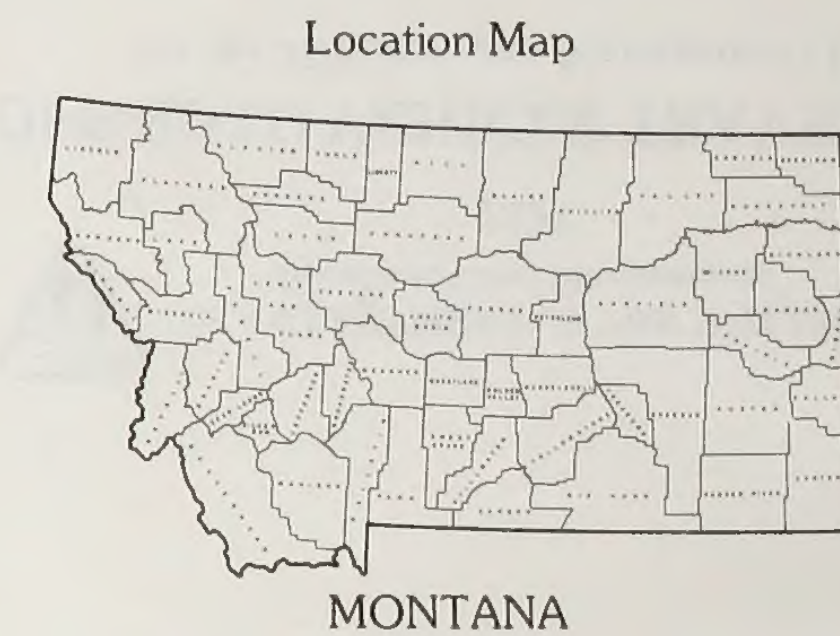
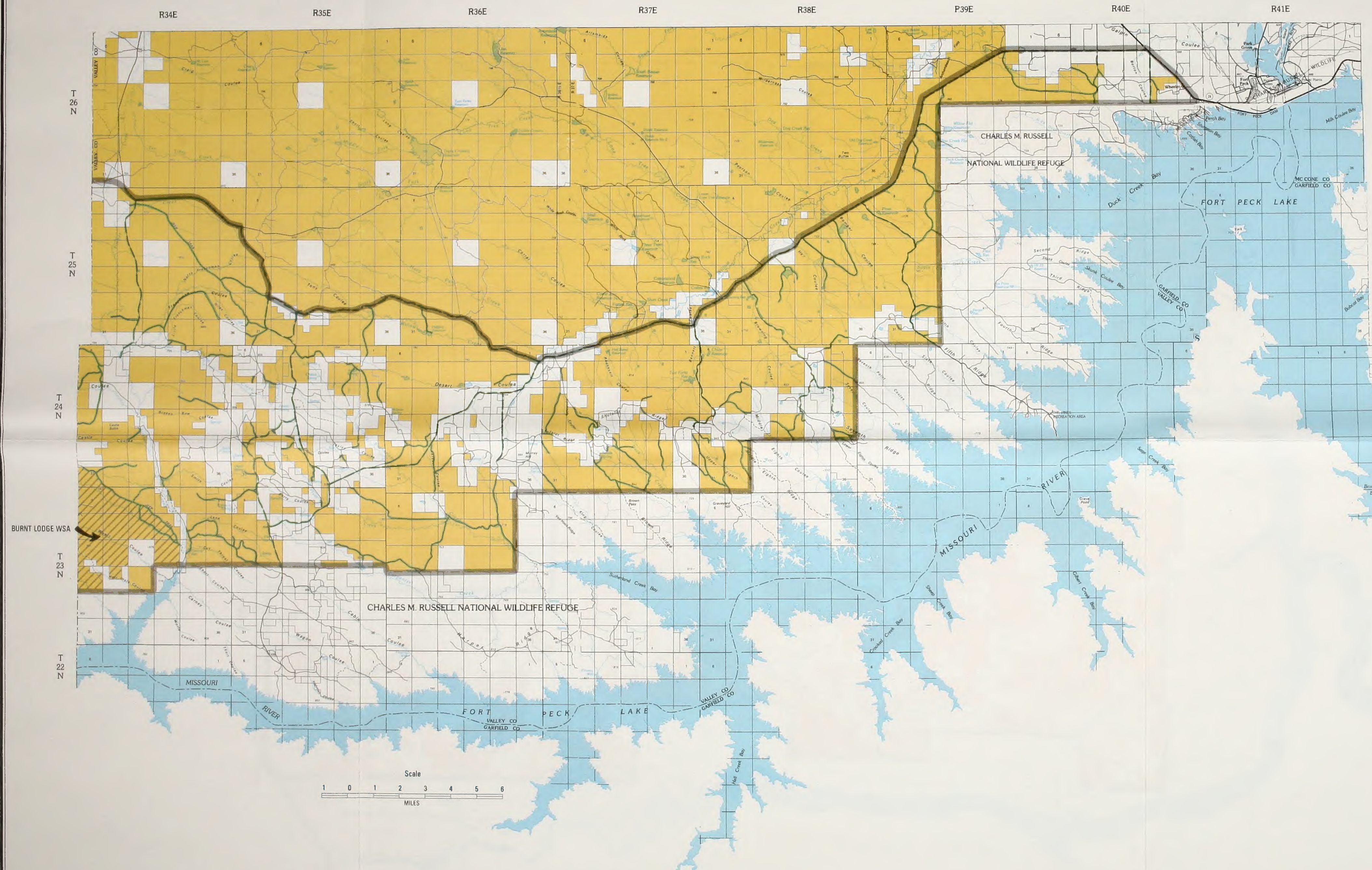
MAP 5 SIDE A

JUDITH RESOURCE AREA
Northeast Portion

LEGEND

- BLM Lands
- NONE Wilderness Study Areas (restricted year long)
- Area with BLM Lands (restricted seasonally, Sept. 1 — Dec. 1)
- County Roads Legal Access to BLM Roads
- BLM Roads Open Year Long
- BLM Roads Closed Seasonally, Sept. 1 — Dec. 1











U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
1991

OFF-ROAD VEHICLE TRAVEL PLAN for the JVP Resource Management Plan

MAP 5 SIDE B

VALLEY RESOURCE AREA

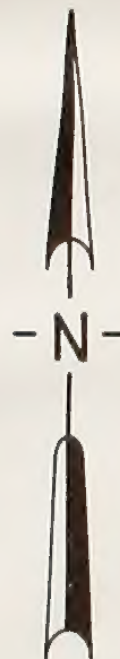
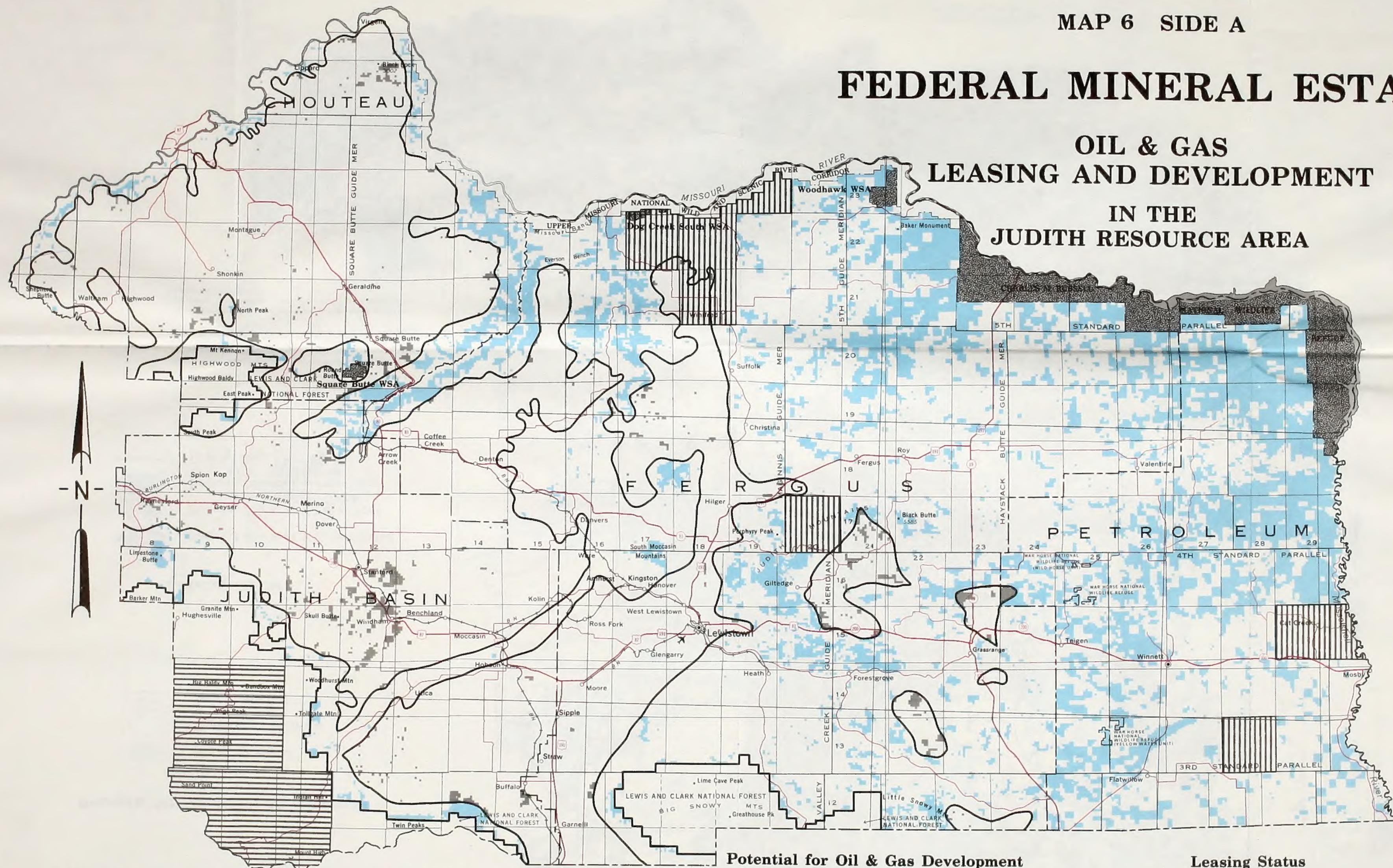
LEGEND

-  BLM Lands
-  Wilderness Study Areas (restricted year long)
-  Area with BLM Lands (restricted seasonally, Sept. 1 — Dec. 1)
-  County Roads Legal Access to BLM Roads
-  BLM Roads Open Year Long
-  NONE BLM Roads Closed Seasonally, Sept. 1 — Dec. 1

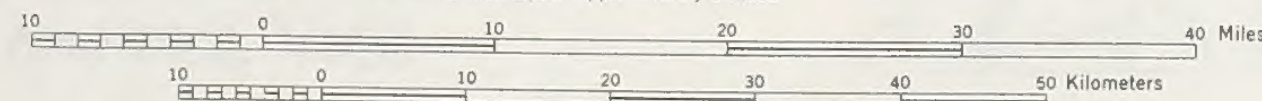
MAP 6 SIDE A

FEDERAL MINERAL ESTATE

OIL & GAS LEASING AND DEVELOPMENT IN THE JUDITH RESOURCE AREA



Scale 1:500,000
1 inch equals approximately 8 miles



Potential for Oil & Gas Development BLM Surface Ownership

- High Potential
- Moderate Potential
- Low Potential

Leasing Status

- Federal Mineral Estate Closed
- Federal Mineral Estate Open with Standard Terms
- Federal Mineral Estate Open with Stipulations

(There are some lands subject to site specific NSO restrictions which cannot be accurately shown at this map scale. These include: 1/4 mile outside Square Butte, four parcels of BLM land in Blacktail Coulee, grouse leks, fishing and recreational reservoirs, raptor nests, and riparian areas.)

This is a graphic display of the Federal Mineral Ownership. More detailed information on title and legal location is available at the respective BLM Resource Area Offices.

MAP 6 SIDE B



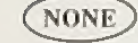
FEDERAL MINERAL ESTATE

OIL & GAS




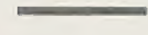
LEASING AND DEVELOPMENT

IN THE VALLEY AND
PHILLIPS RESOURCE AREAS

Potential for Oil & Gas Development

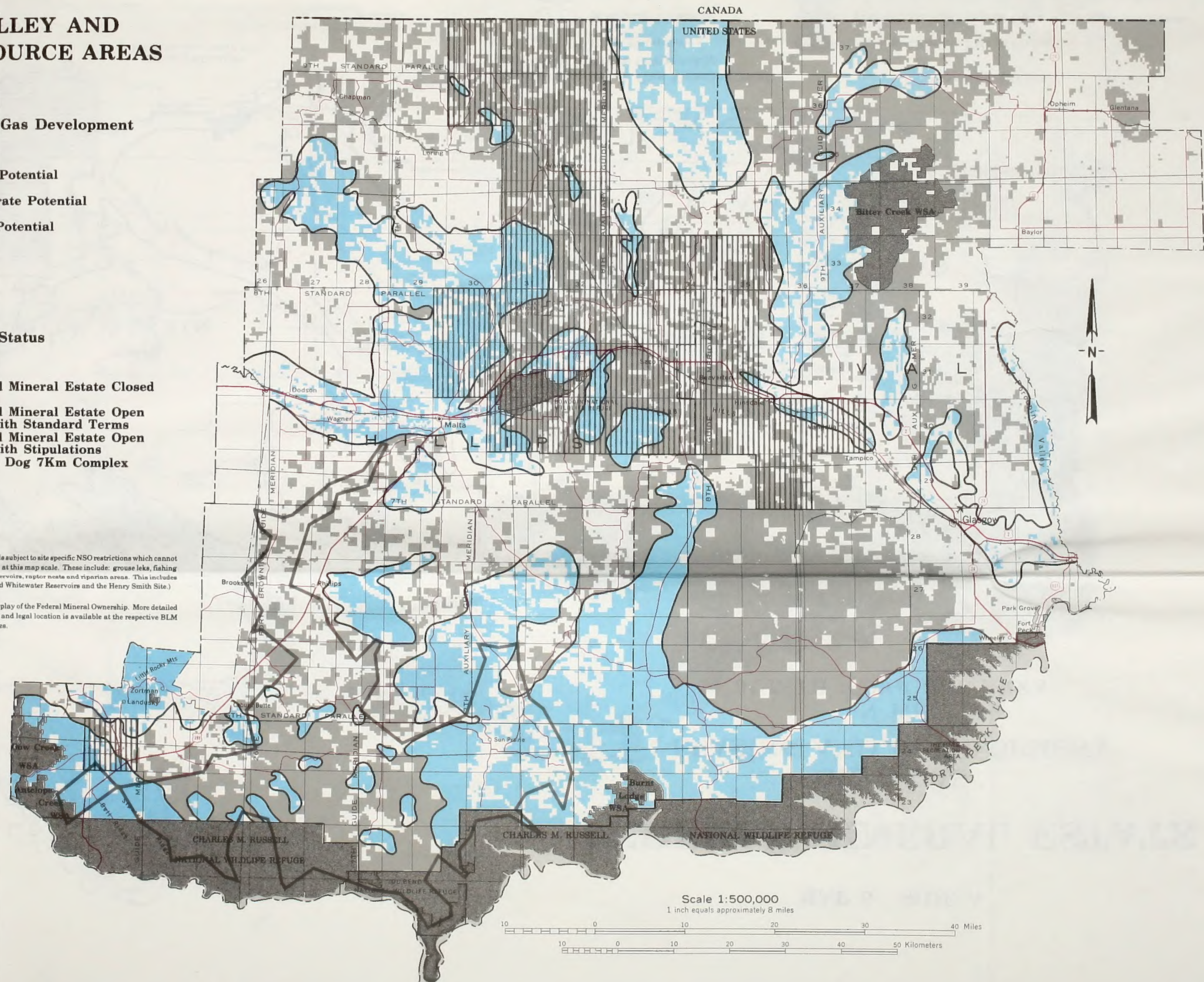
-  High Potential
-  Moderate Potential
-  Low Potential

Leasing Status

-  Federal Mineral Estate Closed
-  Federal Mineral Estate Open with Standard Terms
-  Federal Mineral Estate Open with Stipulations
-  Prairie Dog 7Km Complex





(There are some lands subject to site specific NSO restrictions which cannot be accurately shown at this map scale. These include: grouse lake, fishing and recreational reservoirs, raptor nests and riparian areas. This includes Dodson, Dibbler, and Whitewater Reservoirs and the Henry Smith Site.)

This is a graphic display of the Federal Mineral Ownership. More detailed information on title and legal location is available at the respective BLM Resource Area Offices.



MAP 7

PRAIRIE DOG BLACK-FOOTED FERRET (7km Complex) IN THE PHILLIPS RESOURCE AREA

-  BLM Surface
-  7km Complex Boundary Line
-  Prairie Dog Towns
-  B-001
- Town Numbers
(No Town Numbers Shown in the
Charles M. Russell Wildlife Refuge)

Scale In Miles
1 2 3 4 5 6

